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COMPUTERWORLD

Migration costs stoke user angst

D&B customers balk at added charges

By Rosemary Cafasso
CHICAGO

Dun & Bradstreet Software ticked off some of its customers last week by launching a client/server migration program that could be far more expensive than users had expected.

"We paid for their software, and now this is pay-by-the-drink," griped longtime customer Susan Markofski, director of financial systems at Inova Health System in Falls Church, Va., which runs several D&B host-based packages

D&B announced the migration program, called Smartpath, as part of its professional services offering. Some users had anticipated, however, that it would be hundled with the Smartstream license fee.

D&B would not disclose professional services fees, but analysts said software companies often charge from 20% to 50% of a software license fee for associated services. Smartstream's starting price is $100,000.

In follow-up interviews, D&B officials backed off the professional services plan and said they are still evaluating how to price the migration service.

Stinging issue

But with the Smartpath launch, the Framingham, Mass.-based vendor stepped into what is fast becoming a hornet's nest for the industry: the debate over what constitutes reasonable pricing for client/server migration services. This is a largely untested and tricky area, and prices for consulting engagements can range from $50,000 to well over $1 million for a

Migration, *page 15*

Get in line

Many hands are awaiting their share of the proceeds from the $145M sale of Borland's Quattro Pro to Novell

Taxes owed	NA
Revolving credit to banks	[illegible]
Short-term debt	[illegible]
Estimated first-quarter operating loss	NA
Lotus lawsuit judgment	NA
Remainder	[illegible]

Borland did not provide tax information. Lawsuit judgment still to be determined.

NA: Not available

Source: Wall Street analysts

Borland's plight worsens

Losses expected, earnings reports delayed; stock slumps

By William Brandel

With no new products in the channel to bolster flagging revenue and the outlook for its undelivered products diminishing, Borland International, Inc. last week postponed its fourth-quarter and year-end earnings reports for the third time in two weeks.

The continuing delays, coupled with Borland's announced expectation of a significant loss, have left Wall Street analysts speculating that something is terribly amiss in Scotts Valley, Calif.

The earnings postponement had ominous implications for Borland's stock. As of Thursday last week, it had triggered a 14% drop in the firm's stock price, from 11⅝ to 10.

The company has now formally scheduled the reports for June 2, more than two months after the quarter ended March 31. Borland last week also said it anticipates a loss for its first quarter, which ends June 30. This follows the substantial loss that analysts were bracing for last week.

Roll of the dice

Borland's earnings "are a crapshoot," said Michael Wallace, an analyst at UBS Securities in New York. "Who knows what they'll announce? It should be a pretty ugly scene."

Borland's financial woes leave its database competitors in a position to raise serious doubts about the company's ability to service, upgrade and support its database product on a long-term basis.

Borland, *page 18*

Never, never pay full price!

By William Brandel

The age of shrink-wrapped software is over.

Well, perhaps not overnight. But the combination of site licenses and software vendors' growing interest in electronic software distribution is pushing out applications at prices users are finding too good to pass up.

The promise of lower prices stems from many factors, among them the reality that volume license deals with large information systems accounts and the pricing of product suites have driven suggested retail prices into obscurity. Microsoft Corp. acknowledged as much last week when it announced that it would abolish suggested retail pricing on July 1.

Today, 5.4 million CD-ROMs are installed in businesses worldwide, and 6.2 million units are in homes, according to International Data Corp. Yet shipment of CD-ROM drives to companies nearly doubled from 1992 to 1993, from 1.2 million to 2.2 million.

Irrelevant info

"I don't even pay attention to it," said one IS manager at a large financial firm in Boston. "For the amount of software we buy, I am more interested in how much discount we will receive for how much software."

In fact, users are enjoying software discounts of up to 70% off the street price.

"By buying LAN-based software at volume prices, we are seeing

Full price, *page 14*

Electronic data interchange

U.N.'s global trade net to connect 50 countries

By Lynda Radosevich

Jean Schroeter recently expanded the customer base of her Future Fantasy Bookstore virtually overnight, leaping beyond the boundaries of the bookstore's Palo Alto, Calif., neighborhood to the world at large.

Schroeter managed this feat through an electronic commerce pilot project that enables her to list her science fiction books on the Internet. The project uses software and assistance from Digital Equipment Corp.

"Now I'm selling to people in Singapore, Norway, Iceland. . . . People out there are just starved for books," Schroeter said. After only two months of being online, the bookstore now brings in 5% of its total sales from International business, she estimated.

The bookstore's success is one example of what the United Nations plans to develop on a worldwide basis. In October, the U.N.'s Conference on Trade and Development will unveil an international network of connected "trade points," or designated trading

U.N., *page 12*

RE-ENGINEERING THE WORKPLACE

Every company talks a good game about serving customers, and U.S. firms will spend more than $1 billion this year on customer-focused technology. Much of that spending will support re-engineering of order-entry, help desk and customer service functions. After all, the customer is always right for re-engineering. Page 100

DICK ETHEIR of the Fort Myers (Fla.) News-Press

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What's Inside

May 16, 1994

REPELLING *the* Wily Hacker

JANET HAMLIN

Companies are concerned about Internet security — and they should be. Penetrable protocols and leaky servers are two ways wily hackers gain admittance to data. The best defense against the bad guys? A solid firewall. See In Depth, page 113

NEWS

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- **IBM DB2 users** say IBM has work to do to get its various DB2 databases working more like the scalable, in-sync family IBM had promised. *Page 7*
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- The PC group may be a beacon of hope in **Digital's** rough seas. *Page 43*

WORKGROUP COMPUTING

- A big question for attendees of **Sybase's** international users group was who gets custody of the kids in the Sybase/Microsoft split over SQL Server. *Page 55*

ENTERPRISE NETWORKING

- Novell may find that its recently announced direct support offering, the **Corporate Account Program**, alienates some major customers. *Page 63*

LARGE SYSTEMS

- Data center work loads are still growing, but **expenditures** for technology and personnel are shrinking, according to Nolan Norton's annual data center baseline survey. *Page 79*

APPLICATION DEVELOPMENT

- **Interoperability** between key object standards — Microsoft's OLE and the Object Management Group's Common Object Request Broker Architecture — is beginning to emerge. *Page 85*

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- **CIOs take note**, if your background is strictly on the technical side, your job could be at risk. It's time to replace yourself. *Page 85*

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- **SQL** expert wanna-bes should acquaint themselves with the DB2 optimizer. *Page 121*

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COMMENTARY

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Executive Briefing

A worldwide electronic commerce network is being prepared by the UN Conference on Trade and Development. Due in October, the network is a global version of the information superhighway. It will use technologies including the Internet, and each country will have a designated trading point. *Page 1*

Life does go on for an IS organization after its company does massive outsourcing. But the road can be painful and the result may not be life as the IS group knew it before. *Page 89*

Re-engineering the workplace: Field service, order-processing, help desks, marketing and other customer-focused functions top the list of re-engineering priorities. *Page 100*

Software vendors that have focused on server-based environments are trying to rearchitect their pricing to respond to user moves toward enterprisewide distributed computing installations. However, one of the great challenges is to find a pricing scheme that is fair to both the user and vendor. *Page 14*

Computer Associates' systems software users seem upbeat, saying last week that the CA they once knew has changed during the past three years. The vendor's product support has improved considerably. One result, according to attendees at a CA user group meeting last week, has been that customers are able to focus on technical matters rather than support concerns. *Page 20*. However, **D&B Software** users were more critical, particularly of D&B's new client/server migration program. *Page 1*

Denver International Airport's grand opening was placed on indefinite hold recently due to continuing problems with a computerized baggage-handling system. The airport employs a series of distributed computer systems, tied together over a shared fiber-optic FDDI data network. *Page 30*

Baxter Healthcare, whose proprietary ASAP on-line ordering system was one of the legendary "strategic information systems," is replacing ASAP with a standards-based package that will not be owned by Baxter. *Page 63*

In an effort to leverage its customer information, Service Merchandise recently installed a sophisticated new database. The company cut over from **Computer Associates'** CA-IDMS marketing database to a specialized Unix-based marketing database. *Page 79*

The 5th Wave *by* Rich Tennant

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Kaleida caught in IBM/Apple turf war

Company reduces work force and directs energy toward completion of multimedia authoring tool

By Ed Scannell and Mark Halper

Apparently caught in a turf war with parents IBM and Apple Computer, Inc. for a share of the still emerging multimedia market, Kaleida Labs, Inc. last week said it is curtailing much of its interactive TV efforts as part of a 35% work force reduction.

Kaleida officials said they are harnessing the company's energies to accelerate completion of its long-overdue multimedia authoring tool for computers, called Script X. IBM and Apple have invested an estimated $60 million in Script X development thus far.

Kaleida will halt development of a TV-set-top operating system, a decision that threw into question a deal struck a week earlier by Scientific-Atlanta, Inc., Ameritech Corp. and Digital Equipment Corp.

Million-dollar deal

That deal, worth some $600 million, calls for Ameritech to deliver interactive and multimedia services to potentially hundreds of thousands of homes over its telecommunications lines.

Homeowners would receive the services through Scientific-Atlanta's digital cable technology and set-top boxes running Kaleida's operating system. Those set-top boxes would also include Kaleida-designed graphics and a memory controller chip, called Malibu, that will be manufactured by Motorola, Inc.'s Semiconductor Products Sector.

Last week, executives from Scientific-Atlanta sent a written proposal to IBM suggesting how all parties could work out an arrangement in which Kaleida finishes its projects, sources close to the proposal said. That would allow the Ameritech/Digital/Scientific-Atlanta deal to go forward, they added.

That cooperative arrangement, which reportedly could lead to the spin-off of the Kaleida team responsible for the set-top box technologies as a separate company, was still under consideration as of late last week, the sources said.

"Whether the parties involved jointly decide to spin off a separate company, or a team from within [Kaleida] sells themselves to other parties, this technology will make it to market," said one source close to the talks.

Kaleida Chief Executive Officer Mike Braun said the firm will transfer its interactive TV work to another venture, allowing the Ameritech deal to go forward. The interactive TV team could move to Apple, IBM or another company, Braun said.

About 15% of Kaleida's 126-person work force will leave to develop the operating system, called the consumer operating system (COS), he said. That 15% is in addition to the 20% work force reduction Kaleida announced last week. Braun said Kaleida will cut the 20% from sales and general administration.

Kaleida's CEO Mike Braun: *The interactive TV team could move to Apple or IBM*

Interactive concerns

An Apple spokesman said Kaleida ceased its COS development at the behest of Apple and IBM, but not because either company objected to competition from Kaleida. Rather, Apple and IBM were concerned that Kaleida's interactive TV efforts were "taking management time away from development of Script X," the spokesman said.

Other sources claimed that IBM and Apple barred Kaleida from participating in the Ameritech deal because they each have their own interactive TV efforts Kaleida upstaged.

Braun disputed that scenario, noting that Kaleida has been working with Scientific-Atlanta for about six months.

"This story that Apple and IBM woke up one day and decided to crush it — it just didn't happen that way," said Braun, adding that it was a coincidence that Scientific-Atlanta and Ameritech announced their deal a week before Kaleida changed its business strategy.

IBM and Apple did not have interactive TV development under way when Kaleida began its efforts, but each company has since initiated development efforts, Braun noted.

Braun acknowledged, however, that there had been disagreement among Kaleida, IBM and Apple over interactive TV development as they decided that Kaleida would discontinue interactive TV operating system development.

Application development

Microsoft's OLE may restrict users to single product line

By Stuart J. Johnston and Ed Scannell
REDMOND, WASH.

For the past five years, Microsoft Corp. executives have evangelized that the days of so-called "monolithic" applications with every possible feature built in are numbered.

In the place of these applications, Microsoft maintains, will be "container" or host applications, plus a slew of smaller applications and add-ins that give users the ability to pick and choose best-of-breed features for their container application of choice.

Microsoft has pitched its Object Linking and Embedding (OLE) technology as a way to let users have generic applications objects they can just pick and choose to roll into their host or container applications.

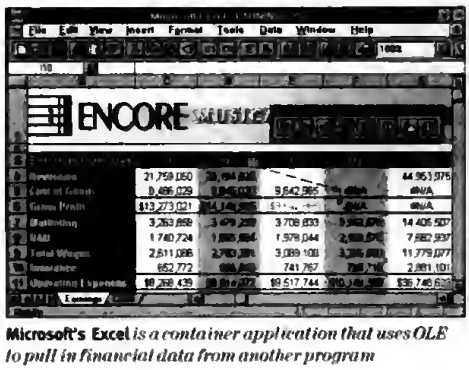
Manipulating customers

But that turns out to be not exactly true. In fact, it looks like OLE could become a way for host applications vendors to force customers to stay loyal once they have picked the add-in objects they want — even if a competitor comes out with a product with more compelling features.

For example, add-in programs based on Microsoft's highly touted object technology are far less interchangeable among competing host applications than was originally anticipated.

"We've seen this in numerous other markets where a program became the standard and stays that way even after it's no longer the best product because of all the add-ins [available for it]," said Jesse Berst, editorial director of "Windows Watcher," a newsletter here.

He cited Borland International, Inc.'s dBase as a classic example of inertia that restrains users from moving to a better product because of the plethora of add-ins for the established product and the scarcity of the same add-ins for newer competitors.



Microsoft's Excel *is a container application that uses OLE to pull in financial data from another program*

In order to work well inside a host application, like any of Microsoft's Office applications, add-ins will have to look like them.

This means the user interface code for the object application has to be customized for each host application.

Therefore, a vendor such as Shapeware Corp. cannot have just a single version of its Visio Express. It must have one for Microsoft's Office, one for Lotus Development Corp.'s SmartSuite and so on.

"Microsoft, as usual, is way ahead because they are building their component architecture around suites, [meaning that] it is increasingly Office-oriented," said Jeff Tarter, editor of "Soft Letter," an industry newsletter based in Watertown, Mass.

While such sameness in the user interface is important to end users because it makes training and support more efficient, the approach has a downside, some users and analysts said.

"They're not competing on features and performance; they're competing on look and feel," said Bill Cornfield, president of the Windows Support Group, a major New York-based consultancy.

"I agree that competing on look-and-feel issues is sort of silly when what users are really interested in is nailing down functional specs in the different categories of software they want to use," said John Rymer, software analyst at the Patricia Seybold Group and editor of Seybold's "Distributed Computing Monitor" newsletter in Boston.

Extra resources a concern

Additionally, the extra resources required on the part of third-party developers to have separate add-in packages for competing applications suites may also be a drag on users' ability to get the add-ins they want for the container applications they would like to run.

"It's a cause of concern for people like Lotus," Cornfield said. "[Microsoft is] saying 'Will you comply with the [Microsoft] Office standard?' If they can get companies to do that, it's going to be a major victory for Microsoft."

However, Microsoft officials said they think the worry is overblown and that competing on user interface issues will only spur innovation in the Windows environment.

Vendors are bringing out ways to allow different object models to communicate. See page 85.

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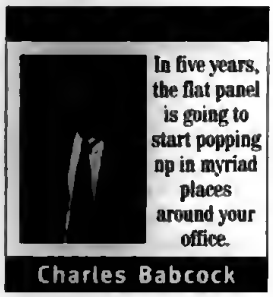
Clinton initiative pushes the flat panel

Tired of maneuvering those bulky CRTs around the office? Do users complain that the multiple screens on their desks are hogging all the space? Do you hear: "Why can't my office convert to flat-panel displays that swivel in and out or disappear altogether when not in use?"

"Fat chance," you say, noting that the price of a shrimpy flat-panel display is four times that of a CRT. Well, the prospects for mass-produced, full-size flat panels are going to improve if President Clinton's Department of Defense gambit succeeds.

The DOD is proposing a small, $600 million investment over several years for flat-panel research and development, offering the most money to those vendors willing to invest on their own in production facilities. (A Japanese active-matrix flat-panel factory is estimated to cost $500 million.) The goal is to build the U.S. share of global flat-panel production to 15% from its current dismal 3%.

Clinton is couching the initiative in terms of the DOD's need for an assured flat-panel supply. Nevertheless, this is federal industrial policy disguised as defense procurement. Clinton would like to ignite a sputtering segment of U.S. high tech. He just might succeed with this GATT-skirting initiative.


In five years, the flat panel is going to start popping up in myriad places around your office.
Charles Babcock

The existing active-matrix LCD technology is difficult to fabricate. Japanese producers like Sharp and Toshiba are heavily invested in plants that produce yields of 50%. "One bad transistor [out of nearly a million per screen] means you've got a pixel that puts up a black dot," notes Thomas Mills, marketing manager at Motif, Inc., a new producer of a rival active-addressing screen in Wilsonville, Ore. Active addressing is more closely related to passive-matrix LCDs with lower fabrication costs, but the screens update rapidly through pulses controlled by silicon integrated circuits rather than serve as a massive integrated circuit. Active addressing is fast enough to allow LCDs to display video.

Small U.S. firms like Photonics, Standish Industries, Planar and an experimental unit at Xerox PARC are coming up with technologies for flat panels or improving on the passive-matrix approach.

Passive matrix can be infused with full color and is good for text and other static displays. But as the mouse moves, the cursor tends to disappear, or "submarine," on the screen, reappearing in its new position after the slow-to-refresh liquid crystals catch up to it.

Three years ago, passive LCDs took 300 milliseconds to update each pixel. Today that refresh rate is down to 120 or 150 milliseconds and "improving constantly," notes David Mentley, director of display industry research at Stanford Resources in San Jose, Calif.

Plasma displays that scale up to larger screens from firms like Tektronix in Beaverton, Ore., "are also coming along quite nicely," although they haven't reached resolutions suitable for computer screens yet, Mentley says. Photonics makes "a great 30-in. display," he notes.

Optical Imaging Systems in Northville, Mich., one of the early beneficiaries of the government's flat-panel largesse, is the only U.S. manufacturer of active-matrix displays. Executive Vice President Charles Wilson realizes there's competition coming from other technologies but said his firm has an advantage in manufacturing savvy.

"Our technical people have told me Xerox has made one of the most beautiful flat screens they have ever seen," Wilson says. "Now all they have to do is make more than one."

The Clinton initiative is going to spur the R&D efforts of those willing to bring production facilities on-line, and in five years the flat panel is going to start popping up in myriad places around your office.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

ThinkPads, PS/2s on way

New laptop, desktop products should ease supply backlog

By Michael Fitzgerald and Jaikumar Vijayan

■ IBM PC Co. is readying a broad line of product releases in the next month, some of which should begin to answer the questions plaguing its server, ThinkPad and PS/2 lines.

Already under fire for widespread availability problems, the PC Co. will kick off tomorrow a series of laptop and desktop product releases. The announcements will include the following:

- **May 17:** A new family of ThinkPads, including Models 755, 360 and the pen-based 730T. The ThinkPad 360 will include the smallest active-matrix color screen that IBM has ever featured. This may ease IBM's supply problems with the ThinkPad, caused largely by the alluring but hard-to-make 10.4-in., active-matrix color screen.
- **May 17:** The ValuePoint Performance series, which will top out with an Intel Corp. 50/100-MHz DX4-based system. This is a significant step forward for IBM's midlevel corporate desktop. It will feature both VL and Peripheral Component Interconnect local bus support.
- **May 23:** IBM's first Extended Industry Standard Architecture bus product, a low-end server.
- **Mid- to late June:** The arrival in the Western hemisphere of the long-delayed PS/2 Models 76 and 77. The delay was caused by a glitch with the BIC 32 controller, a specialized chip that will boost system performance. These will debut in Europe this week, sources said.

Some users were enthusiastic about the products, particularly those that could reduce IBM's product backlogs. The ThinkPad 360 line, for instance, will nearly match today's ThinkPad 750 line in performance but will showcase the 360C, which has an 8½-in. screen that is in much greater supply than the 10.4-in. screen IBM currently uses.

Michael Radigan, manager of Xerox Corp.'s Nova sales force automation project, said IBM is one of several suppliers Xerox is considering for a 1,500-unit order. He prefers the larger color screens on the ThinkPad 750 line, but "if we can get more units around the country, we'll [go with a smaller screen]; availability is a problem with IBM."

Indeed, IBM was expected to also release the ThinkPad 510, a follow-on to its ThinkPad 500, but it will not be announced tomorrow because of potential supply issues. IBM's long-term supply problems are severe, and users are openly skeptical about even solid new products.

"They sound good, but can they supply them?" asked David Pinkard, senior network technical specialist at Mallinckrodt Medical, Inc. in St. Louis. Mallinckrodt uses a variety of IBM PCs and has been one of the more outspoken shops on the topic of IBM's product availability.

Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif., said IBM's supply problems highlight a trend in the market. Brown said managing inventory is becoming the single most important task for PC manufacturers.

"IBM doesn't have a shortage problem, it has an inventory problem. It has too much of the wrong things and not enough of the right things," Brown said. "This stuff is like fruit: It rots."

On the launching pad

IBM's new ThinkPads will shore up its weak midrange line and top out its industry-leading ThinkPad 750 line

Portables	ThinkPad 755	ThinkPad 360	ThinkPad 730T
Processor	25/50-MHz DX2 25/75-MHz DX4	33-MHz 486SX	33-MHz 486SX
Display	Active-matrix, color Passive-matrix, color	Monochrome Pen-capable Active-matrix, color Passive-matrix, color	Monochrome Pen only
Weight	6.4 lbs. (active) 6.2 lbs. (passive)	5.3 lbs. to 6.0 lbs.	3.5 lbs.
Maximum storage	540M bytes	340M bytes	Up to PCMCIA maximum

They come and they go

Michael Coleman, IBM PC Co.'s servermeister, needs a program to remember his boss' name.

Three weeks ago, it was now-departed PC Co. President Robert Corrigan. Two weeks ago, it was IBM Senior Vice President Richard Thoman. And last week, he got William Filip, IBM vice president and general manager of the Advanced Workstation Division, home of the RS/6000.

Coleman, who is general manager of the PC Server Division, had his unit moved to Filip's division last week as part of an internal restructuring, apparently separate from the one Corrigan's departure spurred. According to an internal memo circulated May 9 that announced the restructuring, it should "eliminate duplicate" design and development efforts.

The move could also be aimed at sparking PC Co.'s server strategy, which has stagnated in the last few months as new products have stayed on the drawing board.

The memo specifically cited PowerPC development efforts for the PC server unit, as well as continued development around Intel Corp.'s architecture. An ability to support both processors in the same basic box design is an expected feature of future products.

In a separate move, Anthony E. Santelli, president of the PC Co. Products unit, moved to the PowerPersonal unit to spearhead its product development efforts.

— Michael Fitzgerald and Jaikumar Vijayan

IBM gets its DB2 family act together

By Kim S. Nash
SAN DIEGO

IBM will get its family of DB2 databases — on OS/2, AIX and MVS — "more in sync with each other" starting with next week's debut of database upgrades, an IBM official said last week.

Speaking at the International DB2 Users Group (IDUG) here, Steve Mills, general manager of IBM's Software Solutions Division, said Release 2.0 of DB2/2 and DB2/6000 are expected to ship late this year.

But IBM also dangled tidbits of a larger announcement planned for next week about upgrades to its DB2 family of OS/2, Unix and MVS databases during the IDUG meeting. Several DB2 users were happy to hear that, but some skeptics wondered whether IBM will make the coherence happen quickly enough to compete effectively against Oracle Corp., Sybase, Inc. and other database providers.

"I don't believe IBM is first in decision-makers' minds when they think 'client/server,'" said Freddy Hansen, who is slated to be IDUG president in 1995. He is the database administration chief at Kommunedata in Denmark.

IDUG chuckles

One user at IDUG jabbed IBM with this joke: What's the difference between IBM and Jurassic Park? One is a huge island of ancient mechanical monsters that scare people. The other is a movie.

Smoothing things over

Nevertheless, IBM aims to snatch business from Oracle, Sybase and others with its debut this month of both Release 2.0 of DB2/2 for OS/2 and DB2/6000 for IBM's AIX operating system. The upgrades are intended to smooth differences between each version and the mainframe version, DB2/MVS.

Playing catch-up with more established client/server databases, along with the existing disparities within IBM's product lines, has curbed DB2/6000 sales, said Rob Tholemeier, an analyst at Meta Group, Inc. in Burlingame, Calif.

Differences in SQL syntax among the junior DB2s mean users cannot easily scale applications between them, Tholemeier said. "IBM can call whatever it wants 'DB2,' but that doesn't mean it is at all like what users know as DB2."

Mills disagreed. Dissimilarities in SQL syntax are "so small [that] it's not an issue," he insisted.

However, Mills acknowledged that sales of DB2/6000, in particular, have not soared compared with DB2/2. Unix users want to build more complicated applications than OS/2 users, he said, which draws out the sales cycle. "I can't pretend it's not a more competitive space," he said. In licenses sold in 1993, the DB2 siblings were led by DB2/2 with 66,000, then DB2 for MVS with 5,493. DB2/6000 sold 100 licenses.

Proponents of workstation-level DB2 databases said they are similar enough to DB2/MVS that programmers need less retraining than if Sybase or Oracle were brought in. That can save money, said Charles Golson, IDUG's president-elect.

Part of IBM's problem now is that Oracle and Sybase SQL Server boast more features than do DB2/2 and DB2/6000. Although some of IBM's shortcomings are expected to be addressed in the June releases, holes remain.

For example, unlike Sybase and Oracle, IBM offers no gateways to link the smaller DB2s to rival databases or to nonrelational mainframe products, including its own VSAM and IMS.

Bill Wong, a database brand manager at IBM, promised such access but declined to specify when.

Other Release 2.0 enhancements include the following:

- Support in DB2/2 for Open Database Connectivity standards, which DB2/6000 already supports.
- Support for binary large objects in both products, a first step in adding object orientation to IBM databases.
- New query optimizers in DB2/2 and DB2/6000, dubbed Starburst.

PowerBooks long on style, short on speed

By Mark Halper
CUPERTINO, CALIF

Apple Computer, Inc. today will unveil its next generation of notebook and subnotebook computers. While the machines will not set speed records, users applauded them for their longer battery life and improved styling, cursor control and networking.

The introduction comes none too soon for Apple, which last year fell from the leading worldwide supplier of portables to No. 3, behind Compaq Computer Corp. and Toshiba Corp., according to a new report from Dataquest, Inc. in San Jose, Calif.

Apple said users will have to wait another year for Apple portables based on the PowerPC chip, which drives the company's new Power Macintosh desktop line. But the vendor noted that the new Motorola, Inc. 68LC040-based machines far outperform the aging 68030 PowerBook models.

Charlie Tritschler, PowerBook product manager, said the four new notebook versions — PowerBook 520, 520C (color), 540 and 540C — operate 60% to 80% faster than their predecessor Model 100s, based on Apple tests running Microsoft Corp.'s Excel and Word programs. The subnotebooks, PowerBook Duo 280 and 280C, double the performance of their predecessors, he said.

One from the tree

Processor	68LC040 at 66/33 MHz
Memory	4M bytes, expandable to 40M bytes
Hard disk	320M bytes (internal)
Display	8.4-in. backlit active-matrix color
Weight	4.8 lbs

Waiting impatiently

Yet users did not pay much attention to speed. After all, there are Intel Corp.-based portables on the market that are faster than the new PowerBooks, said Dataquest analyst Kimball Brown. And users are disappointed about having to wait until next year for PowerPC-based notebooks, he added.

"We're buying PowerPC Macintoshes [for desktop use], so to have to go back to the 68040 is a big letdown," said Michael Keithley, informations systems director at Creative Artists Agency, a Beverly Hills, Calif., talent agency.

But Brown, Keithley and other analysts and users credited Apple with sleek styling, including rounded edges, durable plastic and, on the notebooks, a touch pad in place of a trackball for cursor control.

Winning features

The machines also feature, for the first time on Apple portables, built-in Ethernet and stereo sound. in July, Apple will add support for PCMCIA storage devices.

Keithley added that the built-in Ethernet should eliminate the corruption problems that add-on Ethernet adapters have caused for his PowerBook SCSI drivers.

He also applauded the touch pad, saying it is "more natural than having to navigate a ball," and that it should reduce maintenance. "The majority of support issues on my PowerBooks have had to do with trackballs getting dirty," Keithley said.

"From a strictly gee-whiz perspective, there's a lot of things I like about these," said Harry Wilson, network administrator at *Sports Illustrated*.

Among the features that drew Wilson's attention was support for PCMCIA cards. Wilson said he eventually plans to use PCMCIA for a cellular modem. Tritschler pointed out that PCMCIA drives will increase user security because they can be easily removed.

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News Shorts

IBM opens CICS to industry

IBM is opening up its CISC transaction processing software to the rest of the computer industry, enabling it to run on a wider range of systems, the IDG News Service reported last week. This week marks the first meeting of the CICS Implementors Forum at England's IBM Hursley, where the software is developed and maintained. "We are creating an industrywide organization to take charge of the CICS API and decide how it should be developed and improved," said Steve Craggs, CICS business manager at IBM. Attending the first meeting will be representatives from **Digital Equipment Corp., Hewlett-Packard Co., Merrill Lynch & Co., BT** and others.

Preliminary ruling against Microsoft

Late last week, the U.S. District Court in Los Angeles tentatively ruled in favor of a preliminary injunction for **Stac Electronics, Inc.** in its suit against **Microsoft Corp.** A final ruling is expected this week. If Stac prevails, Microsoft will be required to recall all copies of MS-DOS 6.0 and 6.2 that have the DoubleSpace compression utility. A Microsoft spokeswoman claimed there are very few copies of the product in sales channels now.

CA secures Unicenter

In an effort to provide mainframe-level security to distributed platforms, **Computer Associates International, Inc.** last week announced plans to provide graphical user interfaces between its CA-Unicenter/Star systems management package and IBM's RACF security product. The interface is slated to enter beta testing this summer.

PowerMac echoes Newton

Apple Computer, Inc. Chief Executive Officer Michael Spindler told analysts recently that Apple plans to model its Power Macintosh licensing program after its Newton licensing plan. Apple has tried to attract developers and licensees for all parts of Newton with efforts to license the operating system, the hardware design and various other elements of the product.

Surfing the Internet

James Clark, founder and former chairman of **Silicon Graphics, Inc.**, and Marc Andreesen, originator of Mosaic, have formed **Mosaic Communications Corp.** in Mountain View, Calif. Mosaic is a hypertext information system for navigating the Internet. The company said it will develop an advanced, commercial version of Mosaic and will run an Internet information server, or "cyberspace mall," to support hypermedia information distribution.

New HP workstations expected

HP is set to announce midrange Unix workstations this week, coinciding with the interWorks meeting of HP workstation users in Orlando, Fla. The four new machines — three Model 715s and one Model 725 — are based on the new PA-RISC 7100 LC bi-endian chip that powers the low-end Model 712.

SHORT TAKES **Digital** is reducing prices up to 7%, effective immediately, on 26 models of its Value Line of PCs. ... **Frank G. Brandenberg**, who until recently had been deputy president of **Unisys Corp.**'s Computer Systems Group, was named president of the company's Client/server Systems Integrated Business Unit in San Jose, Calif. ... Citing weakened demand for its mainframe application software, **American Software, Inc.** has announced plans to reduce its staff by approximately 90 employees, or 11% of its 825 total employees.

Alpha sales ramping up

By Mary Brandel

it's no Alpha avalanche.

But observers at Digital Equipment Corp.'s national user group meeting last week said they are seeing more interest among Digital and non-Digital customers in Alpha AXP servers — especially since the April announcement of its $26,900 DEC 2100 server. And analysts also said Digital customers have more reason to feel comfortable about migrating.

In a recent study by International Data Corp. (IDC), 30% of 51 Digital sites said Alpha would become their primary platform by year's end. Digital says Alpha revenue is up 400%, compared with third-quarter 1993. The bad news is that European sites are "much more conservative," with only 15% of 67 Digital sites committing to Alpha this year, IDC analyst Chris Christiansen noted. Additionally, 88% of 90 non-Digital sites said they had no immediate intention of moving to Alpha.

Still, analysts and Digital Equipment Computer Users Society (DECUS) attendees pointed to the following as positive developments on the Alpha migration trail:

- OpenVMS Version 6.1 now offers full functional equivalence between the Alpha and VAX versions, with only minor exceptions. Also, OSF/1 is now up to speed with its Unix competitors.
- Customers can add an OpenVMS Alpha to a VAXcluster to try out the technology without making a large investment.
- There is now a critical mass of key applications available for OpenVMS and OSF/1 environments.
- Until early July, customers can get a 100% return on current software when they move to Alpha.

Nonetheless, customers at DECUS spoke of obstacles that are slowing down the move

The University of New Orleans, for example, is planning to switch out two processors on its Alpha-ready VAX for a single Alpha processor within the next 12 to 18 months, said Dan Smith, senior network analyst at the university. But first the university must rewrite its current software, which is written in Bliss, a VMS-specific language.

"They didn't port Bliss," Smith said. "They got C running first."

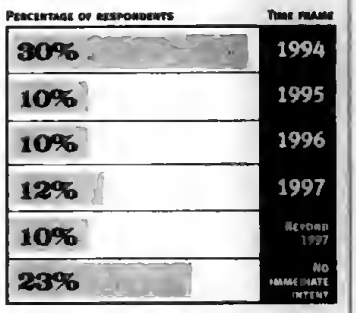
Other users voiced concerns about whether and when certain VAX OpenVMS applications would be ported to Alpha. In at least two cases last week, users heard different stories from product managers and Digital executives as to what is being ported to OpenVMS.

"As a VMS user, I feel I can't take advantage" of new technologies from Digital, said one user, who uses X Window System terminals as clients, in a question-and-answer session.

He said that when he purchased a DEC 2000 server, "I expected a VMS server. What I got was a PC, and I don't appreciate it at all," referring to the system's expectation of PCs as clients. Digital attributed his problems to "start-up pains with the new [Peripheral Component Interconnect bus] I/O structure" and said it is either resolved or being resolved.

Alpha interest

A recent survey asked Digital users when, if ever, would they migrate the majority of their hardware to Alpha



6% DON'T KNOW

Numbers do not add up to 100% due to rounding

Base: 51 Digital sites

Source: International Data Corp., Framingham, Mass.

The fact is, Digital expects 90% of Alpha migrations to be to OpenVMS, and the company worked hard last week to dispel any notion that the operating system would not be alive and kicking for years to come.

A new log-structured version of OpenVMS that will reportedly be five to 10 times faster than any existing file system is expected next year.

For the 1% to 3% of customers that Digital expects to move from OpenVMS to OSF/1, the company has devised a "coexistence" strategy, bearing out its belief that 95% of its customers will not abandon OpenVMS in the short term.

Digital has partnered with a number of third parties to offer coexistence tools. It also said it is putting significant resources into making all of its operating systems interoperable, with Distributed Computing Environment a major part of the plan.

Digital in race to be Top 10 PC player. See page 43.

DEC sales pilot to address concerns

Digital Equipment Corp. said it will pilot new client/server sales systems in Australia this fall, the result of a re-engineering effort to revamp its internal sales process.

In a speech to attendees of Digital's national user group meeting in New Orleans last week, Chief Executive Officer Robert Palmer attributed some of his alleged surprise about Digital's third-quarter loss to the inadequate sales systems and how they work "or, more appropriately, did not work together," he said. The result was "a cascading effect, leading to imprecise forecasts and expectations."

For example, Palmer said in a follow-up interview that Alpha shipments could have been up 100% in the third quarter if the company had met all the orders and closed deals earlier in the quarter. As it turned out, shipments were up 66%.

The news was met with some relief by attendees, but it did not stop customers from voicing their frustration and anger with what even Palmer has called the least productive sales force in the world.

Complaints included ridiculous lead times, inaccurate quotes, lack of product information, systems shipped without key components and delayed shipments.

Improvements needed

"Over the last five months, it's become increasingly difficult to get delivery," one user said in a question-and-answer session. "It's a matter of improving quoting and delivery or continuing to lose business."

Palmer promised to provide more details about the pilot in the next couple of months. The re-engineering, Palmer said, will also make it possible for Digital to reduce its head count. "The people in the middle, the mushy stuff, will be gone." — *Mary Brandel*

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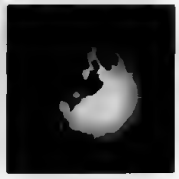
CONTINUED FROM PAGE 1

sites, in 50 countries.

The Trade Point Programme will set up connections via telecommunications links, the Internet and, in some cases, wireless satellite networks. Companies will be able to search for and then compete in new markets, as well as locate source components and raw materials, said Randall Wise, president and executive director of the North American Trade Point (NATP) in Columbus, Ohio.



"It changes the way economic development can be done," said Edward M. Roche, author of *Managing Information Technology in Multinational Corporations*. "It means that companies can get their stuff out there much faster and cheaper than their competitors. The old, tired and corrupt networks, many of which were supported by the previously existing colonial connections, are getting bypassed by this new type of system."

Additionally, the network aims to use electronic data interchange to speed up clearance and reduce the paperwork involved in conducting international trade. For instance, the U.N. estimates that international trade paperwork costs $300 billion per year. The project's goal is to reduce that amount by 25% by the year 2000, Wise said.

Although the Trade Point Programme is officially in its pilot stage until October, roughly 39 countries already have their trade points operating using existing computer and telecommunications technologies (see story at right). In the U.S., the NATP is managing projects for the U.S. Department of Commerce, the state of Ohio and The Limited, Inc., Wise said.

The program is expected to reach 80% to 90% of the 185 U.N. members by the end of 1995, said Bryan Baske, a technical adviser on loan to the project from Digital.

Even playing field

Another benefit of the global network program is the possibility it could ease the technical hassles of trading with partners in countries with less-developed telecommunications infrastructures. In those countries, the trade point will serve as a "Kinko's Copies" of electronic commerce, said David Hough, an IBM executive on loan as a technical director to the NATP, referring to where trading partners can go to conduct business.

Along with a solid telecommunications link, many trade points will have custom officials on site to expedite administrative procedures, Hough said.

Technology users liked the idea.

"It would be an advantage to doing business in Third World countries," said Reuben Lantto, director of international telecommunications at Cargill, Inc., an agribusiness company in Minneapolis.

While the U.N. is sponsoring the federation, funding for the individual trade points is coming largely from the private sector. For instance, the NATP is supported by Digital, IBM, AT&T Corp., Arthur Andersen & Co. and Andersen Consulting.

Additional funding will likely come from the public sector. User fees are charged on a sliding scale depending on company size and amount of data posted, Wise said.

One unanswered question with the network is how secure transactions will be. But firms now conduct business over the public telephone network, so experts said security issues will not deter commodity trading relationships.

EDI cures ills of hospital supply procurement. See page 63.

Around the world

The announcement of UNCTAD's Trade Point Programme will be a key event at the World Symposium on Trade Efficiency slated for Oct. 17-21 in Columbus, Ohio. United Nations Secretary General Boutros Boutros-Ghali and U.S. Secretary of Commerce Ron Brown are scheduled to preside at the symposium.

Analysts likened the Trade Point Programme to a global version of President Clinton's National Information Infrastructure initiative (see related story below) and individual commercial efforts such as CommerceNet in California [CW, May 9].

Components of the trade point system include the existing global Internet and the World Wide Web, a free client/server hypertext system that runs over the Internet.

Users on "the Web," which was developed at the CERN research center in Switzerland, can transparently access documents on servers throughout the world by pointing and clicking. The documents can contain links to documents on other servers that users can access in the same way.

Another critical component is Mosaic, a client application for the Web distributed free by the University of Illinois. The software, which runs on Windows, Macintosh and X Window Systems computers, enables the links to text, images, sound and video files.

Services provided by the trade points will include EDI, trade lead databases, product catalogs and directory services. Also, certain trade points will be connected by videoconferencing links to allow those trading to see one another during electronic meetings.

—Lynda Radosevich

Feds eye electronic purchasing power

By Gary H. Anthes
ARLINGTON, VA.

Driven by a mandate from the White House, the federal government is on the road to electronic commerce, developing a vast interconnected system that will facilitate the annual procurement of some $25 billion in goods and services.

A 50-person interagency task force has just completed a draft blueprint for the electronic data interchange (EDI) project, laying out an ambitious schedule intended to have most government purchases performed electronically within three years. The plan calls for federal agencies to have the first basic capabilities in place by September.

DOD's F. Dean Erwin: *'There is no cookbook approach'*

Because some agencies have no automated procurement support, while others have systems of widely varying kinds, the approach outlined by the federal Electronic Commerce Acquisition Team (ECAT) allows each agency to find its own solution internally.

Meanwhile, the team is defining the technological glue — standards and interface specifications — for tying the systems together and presenting them in a unified way to the vendor community.

"There is no cookbook approach," said F. Dean Erwin, co-chairman of the presidentially chartered ECAT and director of defense information for materiel and logistics at the U.S. Department of Defense. "We are trying to take away the excuses."

"We want to improve relations with the vendor community, increase competition and improve quality of service," said Edward Kinney, director of information systems policy at the Office of Acquisition and Materiel at the U.S. Department of Veterans Affairs. He said the VA also hopes to lower costs by using EDI to enable just-in-time inventory policies.

Key elements of the architecture include the following:

- A single means of supplier registration, a single supplier database and a standard agreement form detailing the rules of the electronic road.
- Use of the ASC X12 ANSI-standard EDI transaction formats. The government will eventually migrate to the United Nations EDI for Administration, Commerce and Transport standard (see story above).
- Development of gateways, using a commercial software package, to translate "flat-file" transactions in agency systems to the ASC X12 format.
- An interagency "virtual network" connecting to commercial wide-area networks. It will consist of a combination of existing agency networks, the governmentwide FTS 2000 networks and the Internet.
- Use of electronic funds transfers as the principle means of payment.

The ECAT report said EDI security is also a concern, and it outlined measures intended to ensure confidentiality, data integrity, originator authentication and nonrepudiation. Security measures will include passwords, trusted operating systems, hash totals, digital signatures and the government's key-escrowed encryption standard, the ECAT said.

Cost estimates for government electronic purchasing have not yet been developed, Erwin said. However, he said the defense department has earmarked $16 million for the effort this year.

G. Martin Wagner, co-chairman of the ECAT and deputy commissioner of information resources management at the U.S. General Services Administration (GSA), called funding "a major concern," but said, "The money will come from some place." He said some agencies may have to defer other activities in order to meet the administration's timetable.

Small potatoes

The government's electronic commerce systems initially will handle small purchases, now defined as those under $25,000. In fiscal year 1992, 95%, or 19.6 million, of all government buys were small purchases.

G. Martin Wagner, co-chairman of the ECAT and deputy commissioner for information resources management at the GSA, said three types of agency procurement systems will emerge: Custom systems at some agencies will be modified and expanded; some agencies will buy commercial, off-the-shelf procurement software; and others will adapt and extend software such as Lotus Development Corp.'s Notes to handle procurement activities.

EDI projects at agencies such as the VA are already well under way. The VA handles 2,000 to 3,000 small purchases a month from 25 vendors through its mainframe system in Austin, Texas. Eventually some 250 vendors — out of 189,000 VA suppliers — will be on the system, enough to account for most of the agency's small purchases, according to VA IS manager Edward Kinney.

—Gary H. Anthes

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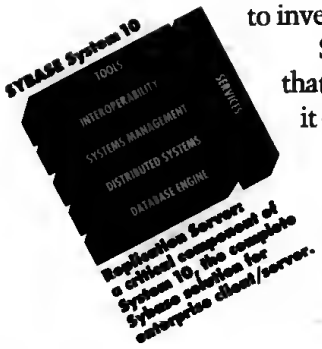

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Enterprise push to cut server costs

By Elisabeth Horwitt

Virtually all of the major PC-based server software vendors are in the throes of re-architecting their pricing these days. The move comes amid pressure from corporate users who are moving from server-based to enterprisewide distributed computing installations.

Vendors, value-added resellers and users contacted last week all agreed that current pricing models are overdue for an overhaul. But they added that a revamp will be neither easy to come up with nor simple to implement. Finding a model that is fair to all sides is also a challenge.

Vendors are trying out a number of license structures: concurrent usage licensing, which bases charges on the number of users who can simultaneously access a given server; site licensing, which charges a set fee for unlimited usage for one site; and tiered server licensing, used by IBM for its LAN server products, which bases costs on a server's CPU capacity.

None of the above options is perfect, users said. "We were always pushing [Novell, Inc.] for site licenses, but it was cost-prohibitive the way they priced it," said Wayne Lemmerhirt, manager of network services at Boston Edison Co.

License lineup

Concurrent usage licensing, currently the most common model, works well enough in a departmental setup, where a comparatively stable group of users accesses one or two servers. However, it is far too rigid for an enterprise configuration, where users may access any number of servers throughout the company on an occasional basis, user and vendor sources said.

Boston Edison, as one of Novell's 100 or so Master License Agreement (MLA) customers, enjoys a special arrangement called seat-based licensing. It pays a set fee based on the total number of workstations that access NetWare resources anywhere in the organization, Lemmerhirt said.

The arrangement offers significant price breaks over ordinary concurrent user licensing, he added. "Companies without MLA licensing that have 10 servers and 500 users end up paying for 10 times 500 users," he said.

However, neither of these license models tailors pricing according to how often, or how long, a given user accesses network resources.

"Vendors try to be very specific about the number of users per server because that is the only [server software] cost measurement we have today," said John Murphy, director of information technology at Texaco, Inc.

However, this type of model "eliminates the flexibility we'd like to have" in terms of matching software costs more closely to actual usage levels, Murphy said.

Cash, check or charge?

POSSIBLE WAYS TO CHARGE FOR CLIENTS' USE OF SERVER RESOURCES:

- **ENTERPRISE LICENSE**
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- **SITE LICENSE**
  For a set fee, unlimited usage for one site.
- **NODE-BASED LICENSE**
  Depends on total number of PCs (nodes) with access rights to network.
- **CONCURRENT USER LICENSE**
  Depends on number of users who can simultaneously log on to a server.
- **USAGE-BASED LICENSE**
  Depends on frequency and length of time a given application or service is accessed.

Both Novell and Banyan Systems, Inc. said they are considering a combination of seat-based licensing and usage-based licensing, which would measure actual usage of applications and services by different users and charge accordingly.

"When you move from NetWare 3.x to 4.x, you have to have a way to charge per seat and per services consumed, not by server," said Kanwal Rekhi, Novell's chief technology officer.

The question is how soon the vendors can realistically implement such a hybrid model. Rekhi said Novell needs plenty of time to get customer feedback before it decides. Banyan recently told customers that its enterprise pricing strategy is years away. In the meantime, Banyan has irked many users by replacing its former unlimited enterprise license model with a concurrent usage-based pricing structure [CW, April 18].

A major obstacle to usage-based licensing is the lack of tools for measuring such usage, users and vendors agreed. What is needed are tools that now exist on the mainframe for measuring things such as frequency and duration of application usage and number of CPU cycles, Murphy said.

Demand for improved tools

Users, meanwhile, said they want better metering tools to get a handle on usage levels for their bookkeeping. Boston Edison, for example, is puzzling over how to set up a chargeback system for the Novell NetWare 4.0 installation it shortly plans to roll out, Lemmerhirt said.

"I'm afraid that we may have to monitor every bit and byte that somebody transmits," Lemmerhirt said. While application software and third-party systems management vendors are partially addressing the problem, Lemmerhirt said he hopes to see from Novell "something like an [NetWare Directory Service]-based counter" that would track each user's request for access to an application or service across the enterprise.

Microsoft Corp., meanwhile, continues to charge primarily for its client software and offer network services, such as electronic messaging, either free or at very low cost. However, the vendor recognizes that as its Windows NT platform moves to a more enterprise-based architecture, through offerings such as Cairo, "we will have to change [licensing schemes] as the rest of the industry is changing," said Richard Tong, a general manager of the company's business systems division.

Microsoft, Candle eye object deal

By Melinda-Carol Ballou

Managing multiple objects across an enterprise of mixed platforms and networking protocols could one day be critical to the success of emerging object operating systems, industry analysts and developers agree.

With that issue in mind, Microsoft Corp. is checking out options from a number of companies — including a pending deal with Candle Corp. to jointly create interoperability technology for disparate object standards. The agreement is expected to be announced this summer, sources from both companies confirmed last week. Products supporting the effort are expected to ship before year's end.

Candle and Microsoft are working to create interoperability between Microsoft's Object Linking and Embedding and the Object Management Group's Common Object Request Broker Architecture, the sources said (see story page 85).

Perhaps more significantly, Candle is testing an object infrastructure with its systems management tools. This infrastructure will provide a framework for managing multiple objects across a network of mixed platforms, which Microsoft is also checking out for possible use with Cairo, sources said.

Corporate developers said this kind of intermingling of object-oriented techniques with systems management could provide invaluable help. "I expect object-oriented standards and techniques will provide a number of benefits when combined with systems management," said Paul Blaney, a vice president at Bankers Trust Co. in New York.

Full price

CONTINUED FROM PAGE 1

about a 20%, sometimes 30%, lower cost of software," said Deems Davis, vice president of IS at Fireman's Fund Insurance Co. in San Rafael, Calif.

Another factor driving software costs down is the movement toward CD-ROM-based distribution of software.

While a standardized licensing control paradigm is far off [CW, April 18], vendors are doing everything in their power to get users to electronically distribute software at their sites. Now, the ability to push software over the wire is about to be extended from LANs to global wide-area networks.

Two of the biggest corporate software providers, Corporate Software in Canton, Mass., and Software Spectrum in Garland, Texas, are joining with Infoset Services Corp. to distribute software electronically on a global basis by year's end. The service will use Microsoft's long-awaited Hermes distributed systems management technology. Pricing has not been determined.

"It's so much more cost-effective without the boxes and documentation," explained Jerry Labie, vice president of national accounts at Corporate Software. "It makes more sense economically and technically for both the software manufacturer and the user to take advantage of CD-ROM. Shrink-wrapped software is the old paradigm."

Labie said CD-ROM-based software distribution eliminates much of the hard costs in software manufacturing. For example, the software has to be printed on only one medium instead of multiple ones. It often requires a limited amount of documentation, instead of needing a box, documentation and wrapping. It also reduces shipping costs.

Less time to install

Moreover, industry observers noted that electronic software distribution on networks is drastically reducing software installation time.

For example, Fireman's Fund Insurance uses an automated software distribution tool that it built in-house to install software across the network. As a result, its administrators can install software in one-tenth the time it took when an administrator loaded software from the console, Davis said.

While users acknowledge license cost savings, some say vendors are distributing software faster than they can control it. A recent Gartner Group, Inc. study indicates that corporate sites on average have 10% to 20% more software than they need. Maintenance, support and installation requirements now make up 75% of PC software costs, according to Gartner.

"A lot of the manufacturers have awakened to the idea that licensing options can be a marketing tool," said Ki Wilson, a microcomputer specialist at Stone Container Corp. in Chicago. "But it just adds to the confusion and complexities of licensing."

Davis said LAN-based licensing is not a panacea for Fireman's Fund Insurance. "We have 7,500 PCs and workstations at this company," he said. "Only 3,000 of them are connected to LANs. As you can see, it does not cover all the bases."

Also, users will have to warm up to CD-ROM technology to take full advantage of electronic delivery. Today, there are fewer CD-ROMs in the hands of corporations worldwide than in the hands of home users, according to data from International Data Corp. in Framingham, Mass.

Migration

CONTINUED FROM PAGE 1

client/server conversion, observers said.

What is more, users can get hammered by unexpected costs because unanticipated glitches are a way of life in client/server migrations.

Yet while information systems managers agreed that client/server migration costs can spiral out of control, there are techniques to combat this problem.

Small scope, small fees

The corporate headquarters division of United Technologies Corp., for example, recently installed financial software from SQL Financials, Inc. The company paid an hourly rate for associated service fees, but they were minimal because the division kept the project small, said Bill Johnston, director of financial systems development.

To manage costs, Ron Shelby, a second vice president in charge of information and technology services in the enterprise services division at Connecticut Mutual Life Insurance Co. in Hartford, Conn., said his company has been training employees to serve as in-house experts on client/server projects. The company contracts with outside programmers for more straightforward tasks, which cost anywhere from $40 to $90 per hour, Shelby said.

Who will pay?

For their part, software companies cannot simply hand out client/server expertise for free, observers said.

"The question is, whose responsibility is it to cover the costs of migration?" asked Thomas Willmott, a vice president at Aberdeen Group, a consultancy in Boston. "I can understand why a customer doesn't want to embark on a project that is totally open-ended, but the supplier has to protect itself, too."

For D&B Software, the plan to embed the Smartpath client/server migration program into professional services angered several customers who said the company should provide at least some free assistance to help them migrate.

Smartpath includes a data extraction tool that will pull out host application data, convert it and load it into the Smartstream environment. But based on initial plans, the vendor will charge customers a usage fee of up to $25,000 per application instead of licensing the tool outright. For the Financial Stream set of four applications, it could cost $100,000 just to get the data onto the new platform.

Given the response to Smartpath, D&B Software officials said they had not actually reached a decision on how the service would be priced. A spokesman said the company would evaluate several options, including fixed pricing.

Other software providers are struggling with this issue, and some have opted for the fixed-price approach. Dennis Vohs, president of Ross Systems, Inc., last week said his company has established a "guaranteed price" plan for users migrating to its client/server human resources software. Ross negotiates a price up front that includes software, migration assistance and training.

Cincom Systems, Inc. and SAP America, Inc. also offer fixed-price options. Cincom began a program earlier this year to convert old VSAM code to SQL code for a client/server environment. It offers the services at a fixed price, ranging from $50,000 to $100,000.

Smart parts

D&B Software's Smartpath has four components, which should be generally available at year's end. The components are the following:

- **A On-line knowledge bases, which are enterprise models that can be used as the blueprint for a client/server environment.**
- **A data extraction tool from Evolutionary Technologies, Inc. that will move data to the new platform.**
- **A client/server warehouse capability to store report information from the host and Smartstream systems for end-user access.**
- **An implementation methodology, which is a set of techniques delivered as part of Lotus Development Corp.'s Notes databases.**

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IBM bets big on Smalltalk

By Craig Stedman

■ In an effort to give users an easier entry into object-oriented programming, IBM plans to implement the Smalltalk language across all of its systems by the end of next year. Included will be a revamp of the Smalltalk-based Envy/400 product released last year for the AS/400, IBM executives said in interviews last week.

The Smalltalk plans will be formally disclosed next week at the DB/Expo conference as part of IBM's introduction of a new product set for client/server application development. The Application Productivity Family replaces the failed AD/Cycle, which was mainframe-oriented.

IBM will also make C++ available on the AS/400 and MVS mainframes in 1995, and plans for an Object Cobol offering are due to be announced in the fall, executives said. But they described Smalltalk as a more user-friendly vehicle for getting into object programming, and customers agreed.

"A lot of people dabble in C++, but it's not exactly an easy thing to grasp," said Paul Maszczak, corporate director of data processing operations at C. R. Bard, Inc. in Murray Hills, N.J.

Smalltalk is easier to use and should make programmers more productive, he added.

Maszczak said C. R. Bard wants to start programming with objects and would strongly consider IBM's Smalltalk offering for its mixed environment of mainframes and AS/400s. "If they get anything cross-platform like that, we're listening with big ears," he said.

Scott Plumer, technical support project manager at Gannett Co.'s data center in Silver Spring, Md., also said Smalltalk is more appealing than C++.

"Most people are discipline slobs and if you give them C++, you'll end up with something that looks like assembler spaghetti," Plumer said. "Smalltalk at least provides some structure. You can get into much less trouble with it than you can with C++."

Chet Geschickter, director of research at Hurwitz Consulting Group, Inc. in Newton, Mass., said Smalltalk is better suited than C++ for adding objects to existing code. "It's quite easy to wrap applications in Smalltalk and use it as an integration vehicle," he said.

IBM Smalltalk, based on code from Object Technology International, Inc. in Ottawa, will ship next month for OS/2 and move to other platforms later (see chart), said John Swainson, director of application development marketing at IBM. The product includes a Smalltalk compiler plus an integrated debugger and editor.

Envy/400 will be replaced by IBM Smalltalk to standardize the offering across the company's hardware lines, Swainson said. The change will require the 300 or so Envy/400 users to switch compilers, but Swainson said IBM plans to provide migration tools.

VisualAge, a Smalltalk-based visual development tool released on OS/2 in April, will also be implemented on IBM's other systems, starting with AIX in the fall and the AS/400 early next year, Swainson added.

The Application Productivity Family also includes a VisualGen code generator, a LAN code library, a data dictionary and data model, with Object Design, Inc.'s Object Store database as a repository, IBM officials said. The PC-based tool set is getting much better reviews than AD/Cycle.

Let's get Smal(talk)

IBM'S TIMETABLE FOR PUTTING SMALLTALK OBJECT-ORIENTED PROGRAMMING LANGUAGE ON ALL OF ITS SYSTEM PLATFORMS

June 1994	Fall 1994	Q2 1995	Q4 1995
IBM Smalltalk for OS/2	IBM Smalltalk for AIX	IBM Smalltalk for MVS (early shipments) IBM Smalltalk for OS/400 (early shipments)	IBM Smalltalk for MVS (general availability) IBM Smalltalk for OS/400 (general availability)

Router software allocates bandwidth

By Stephen P. Klett Jr.

Cisco Systems, Inc. today will unveil software designed to ease the daunting task of meshing SNA and LAN traffic in router-based internetworks.

Cisco's "custom queuing" merges prioritization and bandwidth reservation capabilities to provide predictable performance and response times for the delivery of all network protocols.

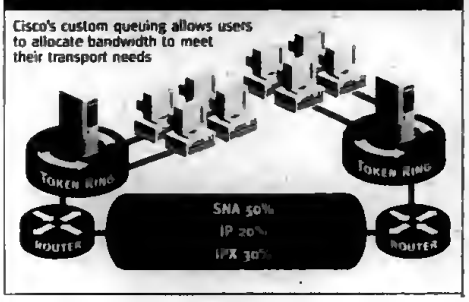
Until now, network administrators have used a process called priority output queuing to assign priority to SNA data bandwidth, which could leave other protocols such as IP and IPX out in the cold. For example, a company's SNA-based data could use up to 100% of network bandwidth at a given time, bringing the response-time for IP data down to zero, Cisco said.

Getting the leftovers

Custom queuing is aimed at eliminating this need for compromise by allowing users to set minimum bandwidth requirements for the various protocols on their networks (see chart). If SNA is allocated 50% of the bandwidth and uses only 30%, other protocols can use leftover bandwith until it is required by SNA, Cisco said.

Traffic control

Cisco's custom queuing allows users to allocate bandwidth to meet their transport needs



Analysts said custom queuing was needed because current router technology does not handle mission-critical SNA traffic well.

Joe Castle, message engineer at Commonwealth Edison in Chicago, which is evaluating ways to move SNA traffic across its roughly 70 Cisco routers, agreed.

"This could definitely be useful for sites with low bandwidth but a lot of SNA traffic. It sounds like it could solve a lot of our problems," Castle said. For example, he said bandwidth reservation could be ideal when a large burst of TCP/IP traffic and a lot of SNA traffic need to go down the same pipe.

Still, some observers voiced concern that Cisco's custom queuing could create confusion in light of alternative methods of SNA transport such as frame relay and forthcoming router products based on IBM's Advanced Peer-to-Peer Networking and Data Link Switching (DLSw). In addition, Proteon, Inc. offers a similar method of bandwidth reservation.

"Custom queuing goes above and beyond what DLSw provides because DLSw does not offer a scheme for data prioritization," said Michael Zadikian, SNA product marketing manager at Cisco in San Jose, Calif. Zadikian added that Cisco may push for custom queuing to be incorporated into the DLSw standard, which is due by the end of the year.

"Custom queuing is a good thing for users because it is yet another choice for keeping their SNA solution alive — and yet it can be a bad thing because it gives users yet another choice," said Glenn Gabriel Ben-Yosef, an analyst at The Yankee Group in Boston. "I think it's good because Cisco is really listening to what its big customers want," he added.

Custom queuing will be available next month and will be included with Cisco's basic router software.

Borland

CONTINUED FROM PAGE 1

"The biggest concern to a corporate customer is, 'What is going to be my situation three, four, five years from now?' " said Tom Button, group product manager for MIS development at Microsoft Corp.

Jumping ship

Just weeks ago, the Soundview Financial Group surveyed Gartner Group, Inc. clients, Fortune 1,000 companies, on their plans to upgrade to Borland's dBase for Windows and Paradox databases. The study found that while 45% of the companies had purchased Borland databases in 1993, only 34% would do so this year and just 29% planned to in 1995.

This is particularly bad news for Borland. While their language tools are credited as solid products, database sales currently make up 60% of its revenue.

Wall Street estimates of Borland's pending loss for the fourth quarter, ended March 31, could be as high as $36 million. In the last week, some brokerage firms, such as Dean Witter Reynolds, sharply raised their prediction of Borland's expected fourth-quarter loss based on new information about Borland. Some loss estimates for Borland were as high as $1 per share for the fiscal year.

"They have no new products, Quattro Pro sales have dried up since the Novell deal was announced, and they have a ton of inventory in the dealer channel," said Timothy McCollum, a financial analyst at Dean Witter. "So they are going to lose a ton of money."

Backpedaling

McCollum estimated that Borland would post just over $60 million in revenue for the quarter, more than a 40% drop from the $117 million posted for the same quarter last year.

Borland officials originally said they would announce the company's earnings on May 2 but pushed the reports back to May 5. After its stock dropped when Borland backpedaled from the May 12 date, the company formally announced it would report on June 2.

A Borland spokesman cited accounting complexities as the reason for the delays, but Wall Street analysts were unconvinced. Borland's expected losses have severely strained its finances and may have placed the company technically in default on the revolving credit loan it signed with bankers last summer. A Borland spokesman could not confirm if the company was in default but said it was communicating with the banks on a daily basis.

The Borland spokesman said the company fully expects to be profitable in the second quarter of this fiscal year. However, analysts remain quite wary about the company's fortunes.

An interview with Philippe Kahn

Borland focuses on helping customers upsize to client/server

We've heard recently about changes at Borland. How will these changes affect customers?

Philippe: Customers will be better served. Borland has re-engineered the way it does business in a way that is in tune with the changing needs of software users. Corporations understand that the next leap forward in worker productivity will come from networked applications in a client/server environment. That's what Borland's upsizing, client/server strategy is all about. And now we at Borland are 100% focused on helping customers evolve and upsize their applications into this new environment.

Philippe Kahn
Chairman, Borland International, Inc.

The whole software industry is consolidating and trimming down in size. Why?

Philippe: The software industry is indeed changing. The PC software industry is evolving into three types of companies: large, multi-billion dollar horizontal software firms, medium-size specialized companies, and small boutique companies. With the recent restructuring and layoffs, Borland is now one of the specialized companies with a clear focus on serving corporate and independent software developers with databases, programming languages, and tools. We also plan to add a significant amount of talent and resources to these areas.

> "Fundamentally, what we have done is to focus the whole company on upsizing and client/server."

How does the acquisition of Quattro Pro by Novell/WordPerfect strengthen Borland's position?

Philippe: Aside from the fact that it provides us with millions of dollars of working capital to invest in our upsizing, client/server products, entrusting the future of Quattro® Pro to our partners at Novell guarantees that customers can keep their software investments secure and growing. For our part, it means we can focus exclusively on our core businesses of databases, languages, and tools, and continue to provide customers with the first-rate technology products they have come to expect from Borland. And, with Quattro Pro and Paradox,® and their underlying object technologies, continuing as part of the Novell suite of products, even more customers will be able to experience the productivity gains that come from Borland software products.

> "Borland is helping developers evolve applications into client/server, rather than go through client/server culture shock."
>
> *Aaron Zornes, META Group*

You made changes to your sales organization. How can you continue to provide the same level of customer service and support?

Philippe: Our plans are to actually increase our levels of customer support, which currently are at near record highs. A recent study by Arthur Anderson shows that what companies want most from vendors is "a capable inside salesperson," rather than a field sales rep. The changes we've made to our sales strategy, including the merging of our customer service, technical support, and sales departments are all aimed at providing better customer support. This new organization will provide customers with more technical information and consulting in a more regular and timely manner. It's the best way to supply and support the more sophisticated client/server products. In addition, we have expanded our third-party programs which provide powerful incentives for independent VARs, systems integrators, developers, and trainers to offer even higher levels of local and on-site support.

Lots of companies say they do client/server. What makes Borland's offerings unique?

Philippe: Borland is providing people with a migration path from standalone desktop computing to client/server computing in a manner that does not require long and difficult retraining programs. Millions of software users and developers can work with their familiar tools—Paradox, dBASE,® Borland® C++, Pascal—to develop Windows applications that are client/server ready. And Borland's early commitment and continued leadership in object-oriented technologies makes it even easier to take advantage of our advanced software products.

What's the big picture for Borland? Where do you expect to be a year from now both professionally and personally?

Philippe: It's already taking shape. There are already more client/server applications in use with Paradox for Windows than with any other PC database. Borland C++ is the market leader in languages. And this summer we are looking forward to shipping dBASE for Windows. Granted, it has taken longer than expected, but we believe that customers worldwide will be glad that we built it correctly and did not release it prematurely. This will begin a new era for Borland and its customers. Later this year, we will ship a next-generation visual development tool that goes far beyond products that are currently on the market. Borland will have an integrated suite of databases, languages, and tools that is second to none. As for me personally, I am totally committed to working closely with our new management team as Borland begins its second decade of providing customers with first-rate software products.

> "As a database and tools vendor, Borland should experience an acceleration in momentum."
>
> *Rick Sherlund, Goldman Sachs*

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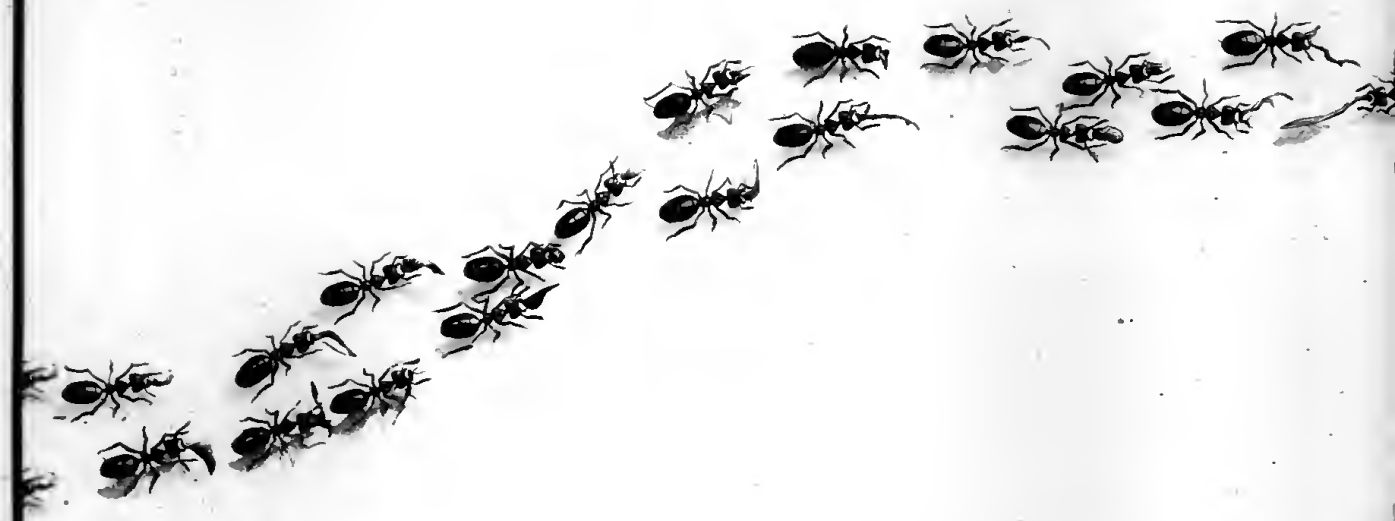

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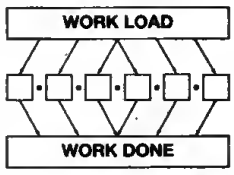

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Users laud CA's improved support

By Thomas Hoffman
CHARLESTON, S.C.

Customer service and product support have improved dramatically since Computer Associates International, Inc. revamped its client service organization two years ago, according to attendees at a CA user group conference last week.

Users who attended the Computer Associates Operations Support (CAOS) conference as far back as three years ago noted how much the atmosphere had improved. In 1991, "the entire CAOS group roared about support problems to the CA representative who attended," said Ann Bradford, an operations analyst and CA-Dispatch user at Service Merchandise Co. in Nashville, Tenn. "Since then, support has been excellent, and we've been able to concentrate more on technical issues," she added.

CAOS comprises 50 companies and government agencies that meet annually to discuss technical aspects of high-end CA systems software products such as CA-1, CA-Scheduler and CA-Dispatch.

Prior to the service overhaul, phone calls placed to CA's technical support staff were often bounced between CA technicians or returned hours later, according to several conference attendees.

As recently as November 1992, "We'd have to tell CA that our system was down completely in order to get a response from them," said Lee Knapp, another Service Merchandise technician and a CA-Scheduler user. In the past, Knapp said his phone calls to the vendor often went unanswered for a full day. "Now, our calls are either answered immediately or returned within 10 minutes," Knapp added.

In response to complaints throughout its user base, CA implemented the Client Service Representative (CSR) program in April 1992.

"We saw the handwriting on the wall. We should have done this four years ago and not two years ago," acknowledged Kurt Seibert, senior vice president of strategic planning at CA. Since CA initiated the program, the vendor has quadrupled its CSR staff to 500, according to Seibert.

The company has refined customer support program during the past two years, so that it now fields 93% of customer calls on a first-call basis, said Henry R. Heidler, a senior vice president of research and development at CA's Mount Laurel, N.J., facility. That compares favorably to CA's first-call response rates in 1991, which hovered around 70%.

Individual attention

Under CA's retooled client service organization, each user company has a dedicated customer service representative who is familiar with each client's product set and business requirements. If a customer service representative is unable to field a client's technical request, the problem is then forwarded to an adjunct technical service representative with in-depth product experience.

As an added plus to the program, customer service representatives are responsible only for client support and not product sales — an organizational change that delighted several conference attendees.

"It seemed like our old [CA] customer representative used to pitch us new products every time we had a conversation," said Kathy Greer, a supervisor for operations support at a North Carolina-based pharmaceutical manufacturer. "Now we just stick to the issues at hand, which is the way it should be," she said.

Overall, CAOS attendees said the improvements in customer support have led their organizations to consider additional CA products, including workstation-based systems software packages such as CA-Dispatch/PC 1.1, which is completing beta testing and will soon begin shipping.

"I work with CA-Dispatch every week, and I can honestly say that I've been able to get immediate support every time in the past 18 months," said Kent Herald, the acting CAOS president and a consultant at TechSystems, a Dallas-based consultancy.

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Mike Quintero

Don Black

A quick performer

Blue Cross and Blue Shield of Florida developed a document creation application that would allow users to pull data from a mainframe host down to a PC platform for inclusion in a Windows™ environment.

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But rather than just blow our own horn about the IEF for Client/Server, we asked Mike Quintero, Manager of the Development Center, Data Administration and Design at Blue Cross and Blue Shield of Florida, and Don Black, Business Systems Consultant of Union Pacific to join in.

Mike: "We had all the hooks up in one week and it only took one more week to build the application and generate code. It was a snap."

Don: "I believe our success with this project is a tribute to the capability of the IEF and Texas Instruments in helping us quickly develop powerful building blocks and redeploy them as required to meet our evolving needs. TI supports everything you need for a major project and walks you through each step in a logical, integrated manner."

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Mixed-host disk arrays on the horizon

By Craig Stedman

Mainframe storage vendors are promising to deliver disk arrays that can be hosted by either mainframes or Unix systems, a move hailed by customers who want to hang onto their storage devices as they move to client/server platforms.

Stan Johnson, director of information systems at Worldport LA, the port authority in Los Angeles, said disk arrays that run on multiple systems would be "a radical departure" with positive implications for customers. "People are looking to make some kind of transition to client/server, so [storage] devices are going to have to work in both environments."

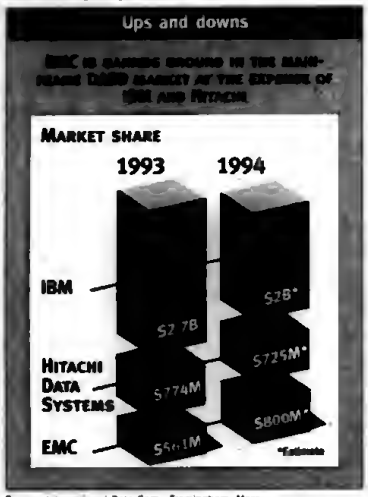
In the works

EMC Corp. confirmed last week that it is working on mixed-host versions of its Symmetrix arrays for shipment in 12 to 18 months. Michael Ruettgers, EMC's president and chief executive officer, said some initial Unix-capable products should be ready late this year, although he did not say whether those devices would also support mainframes.

Hitachi Data Systems Corp. said it plans to provide a mixed-host capability next year. Amdahl Corp. is expected to join the crowd through a recent OEM deal with Encore Computer Corp., and IBM is also thought to be interested in the concept, according to users and analysts.

Users applauded the idea of supporting both mainframes and Unix systems with the same arrays as a welcome form of investment protection.

"It's very important that we have peripherals that work with various machines and can be moved about," said Paul Maszczak, corporate director of data processing operations at C. R. Bard, Inc., a medical equipment manufacturer in Murray Hills, N.J.



Source: International Data Corp., Framingham, Mass.

Bard wants its storage devices "to stay stable while we scale our processors or shift to other platforms," Maszczak added. The company, which currently uses IBM mainframes and AS/400 machines, is considering adding some RS/6000 systems, he said.

Mixed-host support is becoming "very important from a buyer's perspective because their forecasting ability for what [systems] they're going to have in their shops two or three years out is terrible," said Jim Porter, president of Disk/Trend, Inc., a market researcher in Mountain View, Calif.

Some arrays are already tied to different hosts, he said. For example, Data General Corp.'s Clariion unit is primarily a Unix device but will be used by Storage Technology Corp. in its upcoming Nordique mainframe array, a lower-capacity companion to its more publicized Iceberg.

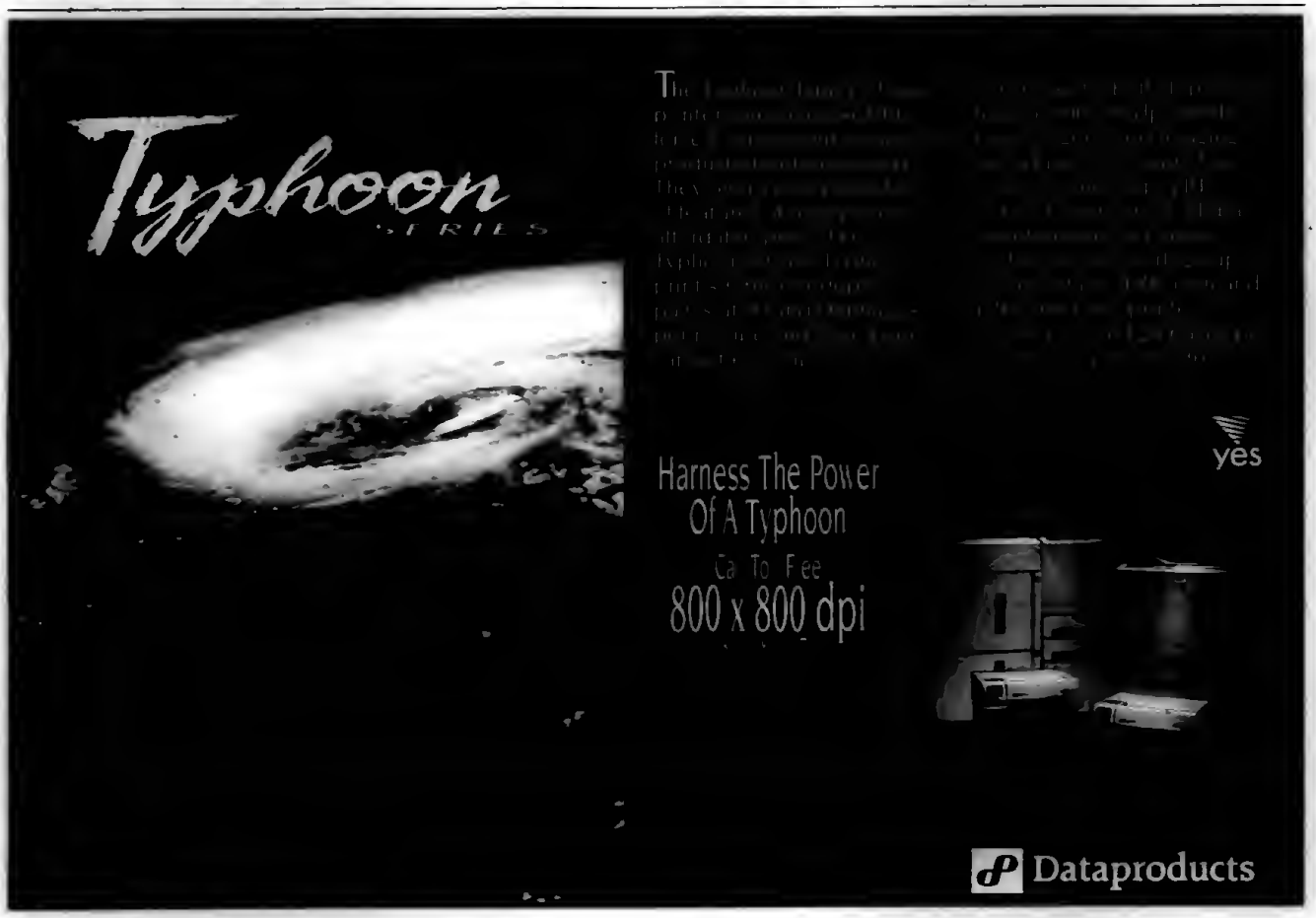
Porter said mixed-host arrays would probably still cost less with Unix systems because of price differences at the controller level. However, the controller typically accounts for only 10% of an array's price, he noted, and disk drive costs would presumably be similar for both mainframes and Unix machines.

The early mixed-host arrays are expected to be limited to supporting a single mainframe or Unix machine. However, Nick Allen, vice president and storage director at Gartner Group, Inc. in Stamford, Conn., said capabilities for dividing an array among multiple hosts could be added by 1996 or 1997.

While HDS will offer mixed-host arrays, Disk Storage Marketing Director Ray Cosyn questioned whether the capability will be used as much more than an insurance policy. The ability to change host systems "sounds good as a sales gimmick, but in reality I just don't see that happening much," Cosyn said.

Meanwhile, EMC upped the capacity reach last week of its Symmetrix 5500 disk array line with a model that supports 1T byte of data. The 5500-9 targets IBM's 3390 Model 9 "Fat DASD" array but performs like the faster 3390 Model 3.

HDS and Amdahl also plan to ship 3390 Model 9 competitors in the third quarter. But analysts said the success of EMC's smaller Symmetrix arrays should give it a leg up on IBM and the other vendors.



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Denver Airport hits systems layover

By Jean S. Bozman
DENVER

■ The city of Denver has put the opening of Denver International Airport on hold indefinitely as the nation's largest airfield struggles to resolve problems with a 20-mile-long computerized baggage-handling system that has mangled its cargo.

The airport, which will replace Denver's Stapleton Airport, had been scheduled to open this week — and each day it fails to costs Denver another $500,000 in the $3 billion project.

An unhappy combination of power fluctuations, mechanical glitches and software problems has prevented the baggage system from being completed, said Frank Kwapniewski, site project manager at BAE Automated Systems, Inc. in Carrollton, Texas, which installed the baggage system.

Decentralized computing, otherwise a hallmark of the new airport's architecture, allowed the PC-controlled baggage system to operate outside the control of the airport's information systems department.

"The only thing we coordinated with was the flight information from the airlines," Kwapniewski said.

Each functional unit of the airport — from security, heating and ventilation to facilities management and the airlines themselves — has its own computer systems. Subcontractors operate them.

"We are very decentralized," said Dave Dixon, a systems analyst who supervises the airport's facilities management system, which is based on Hewlett-Packard Co. Series 700 Unix workstations. "We all talk to each other through the city's [fiber-optic] network."

Computers pass files and messages over the central Fiber Distributed Data Interface (FDDI) network operated by the airport IS department. The IS staff supports PC LANs and workstations on the network and maintains central servers.

Heart belongs to client/server

Client/server computing is very much at the heart of the airport's computing architecture, said Ivan Drinks, MIS director for both Denver International and Stapleton airports.

"Rather than come up with the magical supercomputer that's supposed to run everything at the airport, we've got a bunch of distributed systems that are specialized for particular functions," he explained. "What we do is interface them all."

The baggage system, for example, operates on its own fiber-optic network, which sits apart from another fiber-optic FDDI network operated by the city that acts as a backbone for the airport's client/server systems.

For most airport users, however, there are central services and applications. An airport data center houses an IBM AS/400 for maintenance applications, and a NetFrame Systems server supports a Novell, Inc. NetWare 4.01 LAN for hundreds of PCs. An IBM ES/9000 mainframe that was moved from Stapleton Airport to the new airport — some 15 miles away — has continued to process accounting applications for Stapleton via a T1 data line. Unix servers support point-of-sale terminals and an airport information system.

Once Denver International opens, the remaining computers at Stapleton will move to the new site.

The sheer size of the airport and its 53 square mile area virtually ensured a distributed computing architecture, computer systems managers said.

"There is so much geography that you absolutely have to have a fiber-connected distribution system," said Bruce Van Zandt, a US West employee who is operations manager for the backbone communications network.

Yet the complexity of the task facing the nation's first major airport to open since Dallas-Fort Worth Airport in 1974 has strained the technology, too.

"The major systems, like the baggage and the communications system, pushed the envelope of technology," Van Zandt noted. "The components that were put into the system were run right to the limit of what they were designed for."

No end in sight

For example, users said, the baggage system is similar to one BAE installed in San Francisco's United Airlines terminal — but it is 10 times larger. PC consoles in nine control rooms track bags throughout the airport on some 4,000 automated carts. At most airports, airlines operate separate, smaller baggage systems.

The problems with Denver International's baggage system are not over yet. The city plans to test it for more than a month to ensure its reliability before opening the airport, users said.

"This thing is 20 miles long, so you have numerous problems that are solved at one end and then have to be resolved on the other," Kwapniewski explained. "You take two steps forward and one step back."

Micro Focus users prepare for change

By Jean S. Bozman
SAN FRANCISCO

Not every programmer feels comfortable with client/server computing, Unix and object-oriented programming, no matter how popular they may be.

For many of the Cobol users attending the Micro Focus, Inc. user conference held here last week, the No. 1 choice for building distributed systems is through an evolutionary rather than revolutionary approach. That is because the notion of re-engineering old code or moving quickly to client/server is threatening to many programmers who have been Cobol users for 10 years or more.

"It's just a giant leap," said Peter Szirmak, a senior partner at Information Balance, Inc., a Toronto consulting firm. "I guess they want to find a balance since they have invested a lot of money in training their programmers."

Starting over by rewriting

"It's a real predicament," said Charles Murano, a developer at Cotter & Co., a Chicago hardware store company that includes the True Value chain. "The right way to go to client/server is to start all over. But economically, that's out of the question. So a lot of people want to put up a client/server project and gradually rewrite [their] applications."

In many cases, programmers said they invested 20 years or more in Cobol code, which is literally running their businesses.

"It's an asset that's already in place," said Steve Josselyn, manager of systems market research at International Data Corp. in Framingham, Mass. "To rewrite an application, you either have to retrain your current staff with those new skills or bring somebody in who has the new skills, which is an additional cost."

At the conference, Micro Focus unveiled new products that will lead to a client/server environment, including Micro Focus Object Cobol [CW, May 9], a new object-oriented Cobol compiler for the Micro Focus Workbench 3.2 product, and enhanced graphical user interface (GUI) support (see story at right).

A step in the right direction

Micro Focus Cobol users have already taken the step to develop Cobol applications on IBM-compatible PCs running DOS, Windows, IBM's OS/2 or on workstations running Unix. The next step toward client/server applications, many users said, is to integrate GUIs and objects into their Cobol-language applications.

Micro Focus Object Cobol, which is supported in the firm's mainline Workbench 3.2 integrated tool kit, is a step in the right direction, some analysts said.

"If nothing else, it's valuable as a vision," said Kevin Schick, an analyst at Gartner Group, Inc.'s application development technologies service in Stamford, Conn. "The challenge for Micro Focus is to continue to deliver products against that vision."

However, support for true persistence and full inheritance — two hallmarks of object-oriented programming — will not be available until future products ship, said Micro Focus object expert Raymond Obin. The firm is also writing a C++ "proxy" to ease communication between Cobol objects and C++-based objects, he said.

Nonetheless, users said they are pleased that they now have a way to gain object-oriented programming experience in a familiar Cobol-development environment. "Only a few percent of our programmers have object-oriented programming skills, so Object Cobol would be the easiest way to make the transition," one Virginia developer said.

Focus pocus

Micro Focus upgraded its line of desktop-based Cobol development products last week with objects, new GUI features and more support for client/server computing. Among the highlights are the following:

- **Micro Focus Cobol Workbench Version 3.2:** It includes an enhanced release of the Animator source-code debugger, a new compiler for Object Cobol and support for the native Windows and OS/2 user interfaces. Priced at $2,500, it will ship in late June.
- **Micro Focus Object Cobol option:** A version of Micro Focus Cobol that allows users to "invoke" predefined objects as part of their procedural-code programs. Special syntax lets users include objects in Cobol statements. The 16-bit version should ship in June; a 32-bit version will be announced by year's end.
- **Support for mixed languages in Workbench 3.2,** allowing users to link Microsoft Corp.'s Visual C++ and Powersoft Corp.'s PowerBuilder to Cobol programs.

Micro Focus, which is based in Newbury, England, and Palo Alto, Calif., also said it strengthened on-line customer support to reduce waiting time for users.

—Jean S. Bozman

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Briefs

Media Vision probe

The Securities and Exchange Commission and the Federal Bureau of Investigation are investigating multimedia developer Media Vision Technology, Inc. for possible securities violations. Adding to its woes, three directors resigned, layoffs are expected, the television-set-top business closed, and a restatement of the firm's fourth-quarter results are expected to negatively impact its $19.9 million profit for the fiscal year.

Kendall posts loss

For its first quarter ended March 26, Kendall Square Research Corp. lost $10.1 million, which included $5.2 million in research and development expenses, on revenue of $900,000. For the same period last year, the firm had a restated loss of $3.1 million on restated revenue of $7 million.

Interactive merger

Aiming to accelerate the convergence of on-line services and multimedia capabilities, America Online, Inc. and Redgate Communications Corp. last week agreed to merge and provide new interactive services. Redgate is a media and interactive marketing service company.

Dell revamps execs

Dell Computer Corp. named Morton L. Topfer, 57, vice chairman. He is a former president of Motorola, Inc.'s Land Mobile Products sector. Together with Dell Chairman Michael S. Dell, Topfer will head the newly formed office of the chief executive to which all executives will report.

SHORT TAKES California Micro Devices Corp. sold 10% of its stock to Hitachi Metals Ltd., at $24 per share. . . . IBM has agreed to sell its 590 Madison Ave. office tower in New York for an estimated $200 million to a real estate partnership.

Feds' probe of Microsoft narrows

By Mitch Betts
WASHINGTON

The U.S. Department of Justice is preparing to argue that Microsoft Corp.'s MS-DOS operating system and Windows shell are "essential facilities" in the PC software market, and Microsoft should share details such as undocumented calls, industry attorneys involved in the case said recently.

As the department researches its antitrust case against Microsoft, it appears the essential facilities doctrine — historically applied to utilities — is the leading candidate to provide a legal foundation for the case, according to attorneys who represent Microsoft rivals and requested anonymity.

DAVID FLAHERTY

Fair access for all

The doctrine holds that a company owning an essential facility for a particular market, such as electric power lines or the only bridge over a river, cannot use that monopoly to hurt competitors relying on the essential facility.

Competitors such as Novell, Inc. argue that Microsoft's dominance of the desktop operating systems market means it should provide all application developers with fair access to information about DOS and Windows application programming interfaces (API).

Critics allege that Microsoft application developers have an unfair advantage because they know about undocumented APIs, for example. Microsoft has steadfastly denied engaging in anticompetitive behavior.

The Antitrust Division will not have an easy time making its case, however, because some judges are skeptical of the doctrine.

"It's very difficult to prove an essential facilities case. The term has a nice ring to it, but the courts have not managed to define it well," said Stephen Calkins, law professor at Wayne State University in Detroit.

Reshaping law

On the other hand, the ill-defined nature of the doctrine makes it "susceptible to shaping by good lawyering" by the government, Calkins added.

The key to proving the essential facilities argument is whether consumers have viable alternatives to DOS and Windows, given that Apple Computer, Inc.'s Macintosh and other operating systems exist. Microsoft's critics argue that most DOS and Windows users are practically locked into that environment because they would be unwilling to pay the cost to switch operating systems.

Richard L. Rosen, a section chief at the Antitrust Division, made the same point in a speech last year without specifically naming Microsoft. "If you want to change the operating system, you've got to change all the applications. That obviously imposes very high switching costs and imposes inertia on the market, reinforcing the market share of the firm with the large installed base," Rosen said in his speech.

Antitrust 101

- **Sherman Act (1890):** Section 1 prohibits anticompetitive agreements such as price-fixing and tying. Section 2 prohibits abusive practices to gain or keep a monopoly in a relevant market.
- **Market power:** The ability to control prices or exclude competition. One indicator would be market share of 75% to 80%.
- **Relevant market:** All buyers and sellers of competing products. Defining the boundaries of the market can be the key to winning or losing the case.
- **Tying:** Conditioning the sale of one product on the buyer's purchase of another. Typically, the seller has sufficient market power to leverage increased sales of the second product.
- **Settlement:** A defendant may decide to sign a consent decree, agreeing to cease or modify its practices.

Antitrust experts are divided along political lines over the merits of the Justice Department's approach.

Luke M. Froeb, a former antitrust economist in the Reagan and Bush administrations, called it "a huge mistake" that will lead to intrusive government regulation of the software industry and stifle innovation.

"The essential facilities doctrine will put the court in the position of determining who gets access to the [Microsoft] code and what price to charge," said Froeb, who is now at Vanderbilt University in Nashville.

Choosing the argument

However, Warren Grimes, former chief counsel to the monopolies subcommittee headed by Democratic congressman Peter Rodino in the 1980s, called Microsoft "the AT&T or Standard Oil of our times."

The Justice Department "would be foolish not to advance the essential facilities argument. I think there is an analogy there," said Grimes, now a professor at Southwestern University School of Law in Los Angeles.

An alternative doctrine is "monopoly leveraging," which could be applied if Microsoft used its market power in systems software to stifle competition in applications software. But as in many antitrust cases, the difficult part is distinguishing between vigorous competition and attempted monopolization because "both look very much alike," said Frederick L. Cooper III, a software attorney in Norcross, Ga.

Novell gets go-ahead for buyout

By Elisabeth Horwitt

■ Novell, Inc. last week said it obtained the necessary U.S. antitrust regulatory approvals for its proposed acquisition of Borland International, Inc.'s Quattro Pro business and WordPerfect Corp. The merger is slated to go through in June.

Novell executives assured analysts at a recent briefing that delivery of the strategic NetWare 4.1 is still on track for year's end. Other good news was that NetWare 4.01 sales are about to increase as a percentage of monthly total revenue, after slipping steadily since the initial shipment in April 1993, a Novell spokesman said. Sales of NetWare 4.01 were less than $20M in the first quarter of 1994, down from about $40M in the first quarter that the product shipped.

Sales likely to go up

Novell shipped almost $100 million worth of NetWare 4.x in fiscal 1993, the spokesman said. The vendor is expected next week to release its financial results for its second fiscal quarter ended in April.

Frank Michnoff, a vice president at Prudential Securities, Inc., said he expects Novell to report about $340 million in revenue and a net income of $82.8 million for the second quarter — a slight upturn from 1993.

"I expect NetWare 4.x to hit its stride in 1995," Michnoff added.

"My sense is that Novell is not pushing companies to upgrade their whole organization to 4.x now but rather saying 'get some in, get comfortable' " and wait for NetWare 4.1 to provide crucial missing pieces such as support for NetWare 3.x, Michnoff said. Included with 4.1 will be support for existing NetWare Loadable Modules and tools to ease setup and configuration of NetWare Directory Services.

NetWare 4.02, an upgrade that will include all of the patches Novell has released since 4.01, is expected to ship early this summer.

Meanwhile, WordPerfect Chief Executive Officer Ad Rietveld predicted that revenue would grow between 10% and 15% this year. WordPerfect laid off approximately 1,000 people earlier this year.

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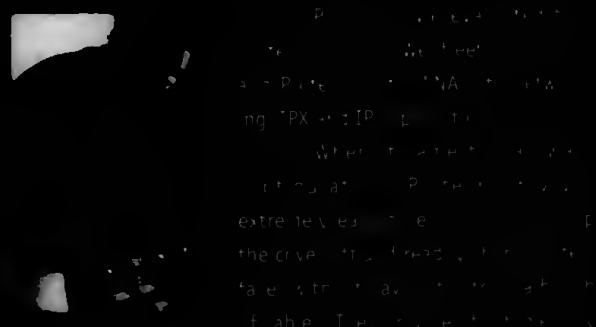

BOB FISHER

Turning point

The history of Digital Equipment Corp. is both glorious and ugly.

In the 1970s, Digital grew from a benchtop operation to the most viable option for customers moving to distributed, minicomputer-based architectures. The company was the paragon of the entrepreneurial spirit.

Digital is also second only to the Boston Red Sox in the number of golden opportunities it has frittered away. It is this carelessness that has put the company's chances of survival into serious question.

That's not an overstatement, either. Sales of the former bread-and-butter VAX lines are ramping down far more rapidly than Alpha sales are ramping up. That's what happened at Wang, Data General and Prime. And Digital's sales force is often seen as sowing more confusion than sense at this critical time for corporate users.

Internally, the company is a mess. How do you get 85,000 workers to concentrate on their jobs when they know that one in four of them is going to be axed in the coming months? How could internal financial controls be so shoddy at this critical juncture that even the CEO of the company was totally blindsided by a recent gush of red ink? Is it my imagination or are Digital's engineers still out of sync with its sales and marketing efforts?

Computerworld's exclusive survey of Digital customers [CW, April 25] reveals that users are generally keeping the faith. But corporate IS must sell its spending plans to executive management, and those of you doing just that know full well how tough a sell it is becoming.

The path leading to a brighter future at Digital originates in its past. The pride in its engineering expertise — pride bordering on hubris — must be reconciled with the market. Digital's first foray into PCs — the Rainbow — produced an overengineered albatross out of touch with the will of the user community and the established IBM compatibility standard. That same arrogance would later make the company an afterthought in the open systems movement, as it paid only lip service to Unix in favor of its "superior" VAX architecture.

Digital does not have the power to make the Alpha chip a standard. I get the feeling the company still thinks it can. Maybe a better idea is to focus exclusively on doing everything imaginable to provide the vast VAX installed base with a path to open systems architectures, utilizing the company's outstanding networking and integration capabilities to do so.

President and CEO Robert B. Palmer has had ample time to streamline an incredibly dense and complex management structure, one that clearly inhibits decision-making and fluid information flow. I don't sense that he's done that much here, the recent "surprise" quarterly loss being one example. He should do it or step aside.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*

Re-engineering: A worthy remedy

Regarding the CW Guide to Legacy Data Access [CW, April 25]: These direct access tools have little or no means to determine the meaning of actual legacy data values, which are often stored without respect for business rules and meta-data descriptions. As a result, users have no way to determine whether answers to their queries are accurate or bogus.

Data re-engineering is no trivial task. It automates the investigation, standardization and integration of data from multiple sources through sophisticated parsing, lexical pattern processing and analysis and statistical matching to retrofit legacy data for the relational world. GUI-based PC data access tools are Band-Aids compared with the data re-engineering cure.

George Burch
Vality Technology
Boston

Middleware has its place

Mark Crego's "Navigating the legacy quagmire" [CW, April 25] accurately describes the genuine need for access to legacy data. Legacy data-access tools such as middleware allow information technology departments to maintain the reliable and secure nature of mainframes, as well as take advantage of today's open systems.

Middleware eliminates the need for massive programming efforts to build the interfaces necessary for the free flow of data throughout the enterprise.

W. H. Highleyman
Wilmington, Del.

Stop missing the mark with projects

"No More Creeps" [CW, May 2] highlighted one of the shameful secrets of the software development field: Few managers of software projects know how long their current project will take.

In your article, 23% had overruns of zero to 10%, and 68% had overruns of 11% to 50%. In other words, 91% of all software projects miss cost or schedule commitments. People now expect projects to be poorly managed.

My advice is to start measuring your current project today and stick with your present technology until you can predictably estimate how long projects will actually take. Freezing as many variables as possible will allow a manager to manage. It is better to sit out a few rounds and master what you already have in place.

Bob Moran
Moran & Associates
Piscataway, N.J

Passing the buck

John Gantz's column, "Outsourcing: The seam may be on you," and your editorial cartoon in the April 18 issue question the validity of outsourcing.

Thirty years of managing data processing groups and facilities has taught me there is no question. Outsourcing has never been and will never be anything but a gimmick to let general management avoid accountability for success or failure of the enterprise.

Earl Gates
Decatur, Ill.

Far from dead

We think it is unfair to label our exhibition as being on its deathbed [CW, Liners, April 25]. Networks Expo in San Francisco was the launch of a new show in a new city. What you also may not be aware of is that it may take several years to establish a show in a new market. In fact, the attendance at Networks Expo in San Francisco was on par — if not better — than the attendance at the first Interop, Comdex and PC Expo — some of today's largest industry events.

James O'Rourke
Chief executive officer
Blenheim IT Events Division
Fort Lee, N.J.

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The CEO who sees the light

James M. Connolly

Picture this. Novell's new CEO, Robert Frankenberg, checks into a hotel. He gets a smile from the manager (you get those when you're a CEO). He gets a nice room (yup, he's a CEO). He gets to move the bed in that nice room and use a nail clipper to pry a telephone line out of the wall so he can use his notebook PC to check his E-mail. Hey! He's no different from the rest of us.

Frankenberg is a computer user, and if nothing else, he brings to Novell an understanding of what the computer industry — and IS — do to make life miserable for users. When he took the stage for a keynote address at the Networld/Interop '94 show this month, he made it very clear: He knows the frustration of arcane DOS file structures, Unix commands and trying to find an RJ11 telephone outlet.

This column was written and rewritten in the days before Frankenberg's speech. My theme was that the industry doesn't put itself in the place of the user. It figures users do dumb things with computers because they just don't understand them. I want to thank Frankenberg for letting me know I'm not alone — users shouldn't have to understand computers. My computers are tools, just like my chain saw, screwdrivers and lawn mower. (Although I am grateful that the screwdrivers and computers don't cut off body parts when I make a mistake.)

The computer has to be as easy to use as a chain saw, only safer.

Then Frankenberg described the frustration of dealing with "dots" in file names and of having to know the "address" of another user who may be lost in the Tower of Babel that is an E-mail directory. He later recalled how he began his tenure in Hewlett-Packard's PC group by going out on his own to install a PC. It took him 18 hours, which inspired his now eager-to-please employees to make it easier to do — in 20 minutes. He promises to try the same test with setting up NetWare. By Jove, he's got it! Every other CEO talks about how his products already are easy to use. Frankenberg talks about how they should be.

I know, you're thinking I'm just another technophobe complaining about having to learn something new. I may not be a power user, but I honestly do enjoy using a computer. What I hate are things like trying to find files when I'm not sure of the exact location. (If I knew the location, I wouldn't be trying to find them.)

For all the vendor talk about commonality and ease of use, it is torture for any nonpropeller head to go from DOS to Windows, Windows to any communications package and from anything to Unix and the internet. Make a mistake? All of these systems will gladly tell you that you messed up. None will tell you how to do it right. The Macintosh is better than most, but not by much.

Whichever industry sector you are in, get in sync (that's a computer term) with your peers and your competitors. Stop looking for a competitive edge from proprietary APIs, hardware interfaces and protocols. If you don't get together, you run a far greater risk than you realize: The tens of millions of people who really do want to get on the information superhighway (I detest that phrase!) just won't take truly meaningful steps until the computer is as easy to use as a telephone or chain saw.

Connolly is *Computerworld*'s sections editor. He can be reached by MCI Mail at 597-1804

Making the most of Notes

John Gantz

The results are in. The average return on investment for a Lotus Notes implementation is 179% over three years. One in four Notes installations has a three-year ROI greater than 200% — even accounting for the net present value of money.

These results came from a study conducted for Lotus by my employer, International Data Corp. (IDC), of 65 Notes sites around the globe about their ROI from installing Notes.

IDC independently picked sites representative of the Lotus installed base, the only qualifier being that they'd had Notes long enough to quantify returns. The key findings are these:

- Notes pays off.
- The speed of payback depends on how Notes is implemented, the existing infrastructure and the type of business.

Within the sample, the average up-front investment in hardware and software was $248,000, and the average payback period — the point at which gross benefits minus operating costs and the cost of money equaled $248,000 — was 2.4 years.

About five months ago [CW, Dec. 20, 1993], I wrote about the impact that Notes and other mail-enabled applications would have on IS departments. I knew anecdotally that Notes was quietly catching on, although a lot of companies were still in the pilot phase. I reasoned that when these applications went into production mode, they would strain existing networks and information technology infrastructures — to the breaking point, if IS departments weren't prepared.

This was the dark side of Notes. Now I have quantifiable measures of the bright side. The pain of implementing Notes or other mail-enabled applications is worth it — probably more so than the pain of implementing a new general-ledger or inventory control system. A Notes application may more quickly buy us competitive advantage or productivity.

The companies that seem to get the most return from their investment in Notes are those that use it to redefine the boundaries of their enterprise — to communicate with suppliers and customers. By taking more risk than those who merely automate a workgroup process or an internal enterprisewide application — that is, by recognizing that Notes can be a beneficial agent of change — these companies get more payback than others (204% average a three-year ROI).

The pain of implementing and supporting Notes or other mail-enabled applications is worth it.

For IS organizations, yes, there will be unplanned stresses put on the infrastructure — it takes well-run servers and LANs, dedicated Notes administrators and plenty of end-user training to make a Notes installation work.

But there will be rewards. Many IS departments found that Notes became the justification for LAN upgrades needed all along; they also found that they *don't* need Notes on every desktop to have a powerful application. And most IS professionals have found that links with a highly visible, successful application has more than psychological benefits. For many, the question is not whether the application pays off but whether the company gets all it can out of the software.

Perhaps the key to a successful Notes application is keeping expectations in line with reality — both with IS staff and end users. Since the application often takes both sides into uncharted territory, this is not easy.

What's clear is that it's no longer career-threatening to contemplate implementing a new application like Notes. Soon it will be career-threatening *not* to.

Gantz is senior vice president at International Data Corp. in Framingham, Mass. He is responsible for all research and consulting in desktop automation and workgroup and office computing.

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'Aha!' not that difficult

"Getting to 'Aha!' " [CW, March 21] lists five objections to object technology that are grossly generalized and thoughtlessly presented as representative of the industry today.

- **Executives don't understand it.** Executives in many of my client organizations would be surprised to hear this. They have investigated the business needs of information technology and see how object technology can help them achieve their goals.
- **Programmers don't want it.** The programmers who don't want it probably don't want anything new. We are working with many groups who want anything that can make them more productive and competitive.
- **Learning it takes more time and money than anyone wants to commit.** Who did you talk to to come up with this absurd conjecture? The rate of adoption proves this to be false.
- **Managers have to develop new rules for managing it.** True, although many of the same principles apply.
- **Large companies resist using it.** Some parts of some organizations resist any type of change. These parts are usually the first to go. Look a little further next time.

I work with vendors who develop object technology and Fortune 500 companies that adopt it every day. Users are benefitting from objects, developing applications ranging from leading-edge Wall Street financial products to Detroit personnel systems. An article that dismisses this work and the results is irresponsible.

Adrian J. Bowles
Westport, Conn.

Dell has a long way to go on notebook service

Michael Fitzgerald's otherwise excellent observations ["Dell it like it is," CW, April 11] neglected to identify the principal reason why Dell has not, and will not, be successful in the notebook business. And it has little to do with technology.

Dell's sterling reputation for quality products — and even better customer service — has not carried over to its notebook products. A visit to any number of public bulletin boards (CompuServe's Dell forum, for example) reveals enormous customer dissatisfaction, not only with Dell's now-discontinued notebook products (cracking cases, defective displays and so on), but also with the company's failure to acknowledge and correct these problems.

Before John Medica can "resurrect" Dell's notebook business, he'll have to regain the confidence of his customers.

Carl Argila
Pico Rivera, Calif.

Bonus package

In "Buy Smart: BBS software" [CW, March 28], you state that "BBS software built on multitasking architectures can support only eight simultaneous users per PC."

I regularly use a bulletin board system that (fortunately) doesn't know about this restriction. The OS/2 Shareware BBS at (703) 255-4325 currently supports 14 simultaneous, high-speed modem connections on IBM's OS/2 2.1 using Maximus BBS software.

Kurt Germann
Gaithersburg, Md.

Gateways aren't leading anywhere

Richard Finklestein's article on database gateways, "Gateways still need work" [CW, April 25], hit the nail right on the head.

Many users, including myself, have been extremely frustrated at the unexpected woes of accessing legacy data for reasons well-documented by Mr. Finklestein.

I have a sixth issue to add to the five already pointed out: Beware the mainframe database vendor that has recently added SQL front ends. In most cases, the SQL front end is put in due to competitive pressures from true relational database vendors and the availability of tool kits that use SQL.

However, SQL language semantics inherently encourage the relational data model, and many older database systems are based on the hierarchical model.

Most client software developers using SQL to access data [including most shrink-wrapped client development tools], assume a relational database at the back end and encourage the developer [or end user] to use relational constructs such as joins in their queries.

Guess what? In performance-critical applications, it is prayer time.

Naveen Narula
Plymouth, Mich.

Access to information will unify, not divide

I was interested to read your editorial on the copyright violation case and was intrigued by your segue to restriction of information [CW, April 25].

I'm not a zealot. I'm a woman (of childbearing age with a 2-year-old), and I think you've rather glossed over the issue of gender and age-biased human resources screening.

In particular, you write, "So why not screen out candidates who might, say, present a greater risk as medical insurance liabilities, like older people and women of childbearing age? That's illegal, but who's going to catch you? Probably no one, unless we have increased restriction to certain kinds of data."

Well, actually, when you go on an interview, of course, people can see that you're a 30-year-old woman, or see that you're pushing 55+, so this prescreening wouldn't work anyway. It is impossible to deny access to some types of information.

The only way to "catch" people who discriminate in this or other ways is to take seriously statistical anomalies (for example, 99+% of the CEOs in Fortune 500 companies are male) and interpret them as indicative of something, even if it is not litigable.

Personal (medical) information, professional trade secrets and so on have always been covered or coverable by contract. Unless you are proposing that human resources people break into private databases (which is presumably trespassing to begin with), I don't know that any additional information control is necessary.

The way to curtail abuse of information is to have sufficient penalty for unethical or immoral information abuse; morality and ethics are built upon social standards, and social standards are most effectively set by consensus. How can concensus be reached without sharing and discussing information? Thus I reach the conclusion that information must be freely accessible in order to attain moral and ethical consensus.

Once the consensus is attained, implications can be further examined, and consensus can be revised.

Thus the next question becomes: Since only a finite amount of information can be absorbed by people, who, if anyone, screens the information (the media)? What are the social/political/legal controls on the screeners?

I personally believe that only by allowing access to all public information — so that anyone interested can retrieve the information they find useful — can we begin to unify our culture(s) around a common system of ethical and moral tenets.

Jessica Margolin Bailey
Director of marketing
Handmade Software
Fremont, Calif.

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DEC in race to be Top 10 PC player

By Mary Brandel

In mid-April, as Digital Equipment Corp. faced its now infamous third-quarter loss, the Digital PC business unit was at the opposite end of the spectrum. Its PC revenue and unit shipments had more than doubled from the year before, with sales reportedly reaching the 230,000 mark — more than 1992's total sales.

In fact, analysts said Digital could be a Top 10 contender in the worldwide PC market by year's end if it can maintain its momentum. In 1993, it finished 15th, according to Dataquest, Inc.

The question that immediately leaps to mind is, why would a buyer choose Digital ahead of Compaq Computer Corp., IBM or Dell Computer Corp?

Up the scale

Digital is vying for a slot among the Top 5 PC makers by the end of 1995

Source: Dataquest, Inc., San Jose, Calif.

Why Digital?

The reason cited most often for choosing Digital, customers said, is service.

"When our customers choose Digital, it's because of added service or innovations" that Digital can provide, said Ken Fobes, vice president of ACR Systems, Inc., which sells point-of-sale systems. StorageWorks is one example of a Digital innovation, he added.

"Compaq makes an excellent PC, but it's all handled through dealers," Fobes continued. "That's what the Digital service organization brings to bear. They will take the entire store of equipment and wrap it into a single service policy."

But the cost of quality service keeps Digital's prices just a little too high for some.

While facing budget constraints, the Bayfront Medical Center in St. Petersburg, Fla., needs to find 33-MHz 486 PCs with 100M-byte hard drives and 4M bytes of RAM for under $2,500. "Digital's got a good product, but it's a little pricey," said Mike Loustaunau, application analyst at the center.

Buying the name

"Digital is heading for a price point between Gateway and Compaq," said Chuck Venter, an analyst at Meta Group, Inc. "If you wanted a decent price but didn't want a real clone, Digital still has a better name than a lot of those players."

"Many of the ads for [PCs like] Dell and AST would suggest you can purchase them for considerably less money," said Richard Krohe, manager of technology architecture at London Life Insurance in London, Ontario. "But by the time you get to an equal configuration [with Digital], there's not much difference."

Digital started manufacturing its own PCs in August 1993 and now offers a variety of desktop machines and file/print servers; application servers are on the way, and Digital-manufactured portables are promised by year's end.

DEC, *page 46*

Close counts at DEC

When Enrico Pesatori took control of PCs at Digital more than a year ago, he was given the goal of becoming one of the Top 5 PC makers by the end of 1995. In an interview last week, he said Digital will at least come close and that the No. 5 spot is still his goal. But with No. 5 getting crowded, Pesatori said he would not be unhappy if Digital missed the mark by some thousands of units and ended up at No. 6.

Most analysts and Digital itself agreed that it will be OK to come close. "I hope we will be up there. But if you take the Top 3, Apple, IBM and Compaq, the rest of the companies are pretty much similar in size," Pesatori said, referring to Hewlett-Packard Co., Digital, AST Research, Inc. and Packard Bell Electronics, Inc.

HP recently said it is vying for the No. 5 slot, and even Pesatori sees that company as a tough contender. It shipped 600,000 units worldwide in 1993, according to Dataquest, up 129% from the year before. Digital sales were up 192.6% in units, but its total shipments were smaller than HP's. — *Mary Brandel*

Microsoft's Allchin takes charge of Business Systems

In Microsoft Corp.'s recent reorganization, vice president Jim Allchin was named to head a new organization called Business Systems, which is responsible for Windows NT, NT Advanced Server and all the company's server products. The group also includes the Solutions Providers program, which works with outside resellers, Microsoft Consulting and the developer relations group. A co-founder of Banyan Systems, Inc. who prides himself on being a technologist, Allchin recently spoke with Stuart J. Johnston, Computerworld's senior correspondent, Northwest.

CW: What was the purpose of creating Business Systems in the reorganization?

Allchin: Client/server is only one little piece of distributed computing. There is a transition going on, and there are huge dreams of distributed computing. But we're a long way from it, and the reality is it's expensive, and there is retraining that has to go on. There's not a single person you can call — it's multivendor. While there are huge advantages, we still have a long way to go. This is a decade-level vision. Many of these benefits don't just come from client/server. You actually get them as you move ahead.

For the past three years, we've been working on changing the people in the organization, the product strategy and how we leverage partnerships. We've hired a lot of people who have done very significant things before.

With the reorganization, we also refocused the company on how customers want to deal with Microsoft. This group is the largest product group in the company, and it's the largest sales and marketing group.

It isn't an overnight change, but I think we've now articulated this in a clear fashion. From a product strategy perspective, what we're trying to do is lay the right infrastructure for distributed computing. You start by laying a great foundation like NT and make sure it's portable. And we're committed to having the best-of-breed server applications. It's not quite like a desktop application. It's more of an enabling environment you can build on top of.

The areas we're concentrating on are database, messaging, systems management and host connectivity. We also want these things to be integrated both with the client as well as with each other and to the operating systems and [have] interoperability with existing systems.

Microsoft VP *Jim Allchin: 'We're very happy being No. 2 in the workstation arena'*

CW: How does the Solutions Providers program fit into this?

Allchin: The Solutions Provider side is the counterpart of what I talked about in the products area. It is a business infrastructure rather than a technical infrastructure. It doesn't matter if you've got great products if you can't get the solutions to the customers and get their feedback. We are now going to be able to talk to them in a much more consistent way.

CW: Are you going to make that 1 million units in sales of NT that Bill Gates predicted a year ago?

Allchin: The truth is I don't know, but I don't think so. I don't know because we don't have the right tracking. The unfortunate thing is we shouldn't have been trying to quantify it like that. The server side is doing better than we expected, and for the workstation we're doing very good, but it's tied to the market, not tied to the secretary's desktop.

But if there's anything that I hope you write about, it is how deeply Microsoft is committed to this. First of all, we see this as the fastest-growing revenue opportunity. That keeps Microsoft's attention. The second point is that the NT technology is strategic to Microsoft.

CW: Do you have any estimates of how many units of NT have shipped so far?

Allchin: No. But I need to emphasize that regardless of what the final numbers turn out to be, it's the wrong measurement. It's the wrong metric, and it also mixes client and server [sales]. We're happy with the quality. We're very happy with the design wins. We're very happy being No. 2 in the workstation arena [behind Sun]. And on the server side, we're doing exceptionally well compared with the numbers we planned for NT Advanced Server. And customers are happy.

I can't emphasize how strategic the technology is. Today, we're running the heart of our business [at Microsoft] on NT servers. We're doing [technical] support based on a massive NT Advanced Server database — 800 connections hammering at it all the time. We're in the process of moving the accounting and sales order entry and all that stuff onto it. We're going to base our entire business on it.

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Portable computers

OmniBook woes cause HP to reexamine line

By Mark Halper

It has been almost a year since Hewlett-Packard Co. entered the portable computer market with its 2.9 pound OmniBook subnotebook, and although the machine drew early applause for novel features, market acceptance for it has been a different story.

Despite critics' praise and the prestigious nameplate of the machine, as of the end of 1993 HP had failed to crack the list of the Top 25 portable computer vendors, according to market research firm International Data Corp. (IDC) in Framingham, Mass.

A tale of expansion

With this in mind, analysts said HP is preparing to expand its portable offerings into a line of notebooks and subnotebooks by mid-summer. Sources said the line is expected to feature floppy drives, backlit screens and color displays — none of which is currently included in the OmniBook.

An HP spokeswoman would say only that those features represent "what mobile computer manufacturers are doing right now, and we are a player in that market." She declined to elaborate on that statement.

Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass., said he expects to see new models this summer and that pricing should be competitive with rival models such as Compaq Computer Corp.'s Contura.

HP laid the groundwork for these new boxes in February when it introduced a version of the OmniBook with 105M bytes of storage — up from 40M bytes — and stopped bundling Microsoft Corp.'s Word word processor and Excel spreadsheet for Windows.

IDC analyst Ted Julian pointed out that the original lower storage capacity discouraged potential buyers. Even with compression utilities squeezing 80M bytes of storage into 40M bytes of raw capacity, the built-in Microsoft software took up half of the storage space, he said.

"They needed to offer people the ability to alter applications and not constantly be playing storage games," Julian said.

Giusto noted that the new models should further address storage concerns by including an external floppy drive. Julian added that a floppy drive would make it easier to download data from desktop machines.

That process, now done with Traveling Software, Inc.'s LapLink program, "is not like the familiar floppy drive people are used to," Julian said.

Price range

Prices for an OmniBook with a 105M-byte hard drive start at $1,399. The 40M-byte version starts at $1,199.

Looking for speed

Clark Liddell, project engineer at Federal Express Corp.'s operations and engineering department, is an OmniBook user with another concern. Liddell said he hopes HP comes out with processors that are faster than the 25-MHz 486SLC it currently incorporates in the OmniBook.

Fedex pilots run a homegrown software program on OmniBooks installed in cockpits to help assess weather and runway conditions and determine optimal takeoff and landing logistics. The program takes about 15 seconds to assess one runway and up to two minutes for more than one runway, Liddell said.

Briefs

Motorola debuts new chip

Motorola, Inc. has introduced the 68060, a 3.3-volt chip expected to achieve its highest sales in the embedded control market. Motorola's biggest customer, Apple Computer, Inc., will not adopt the chip, though third-party upgrade companies such as DayStar Digital, Inc. will offer upgrade boards for current Macintosh users. The 68060 is available in 50-MHz and 66-MHz speeds. The 50-MHz chip will ship in volume late in the third quarter, and the 66-MHz chip will ship in volume late in the fourth quarter. Pricing is expected to be $263 per chip in lots of 10,000 units.

Caere drops scanner prices

Caere Corp. in Los Gatos, Calif., has dropped prices on the Windows version of its Omniscan hand scanner by nearly 45%. The scanner will now retail at $239 instead of $449. The company also plans to announce a similar reduction for the Macintosh version of its scanner.

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DEC

CONTINUED FROM PAGE 43

At the University of New Orleans, Digital PCs are purchased for developers only or to run as servers. "A desktop PC doesn't need such high-quality service," said Daniel Smith, senior network analyst at the university.

The university also chose Digital because it will be able to upgrade the daughterboard to Digital's Alpha technology in the future. Kenneth D'Aquin, systems manager at the university, pointed out that Digital seems to build its PCs to excel in high-end situations. "At the low end, it's maybe not blazing fast," he said. "But load it up with 20G [bytes of data], as in a data center situation, and it scales a lot better" than other systems.

A change in service

In the near future, however, Digital service may be harder to come by, analysts said, as the company makes its promised move to more indirect channels.

But the move to indirect channels is a critical piece of the PC business unit's success. With Enrico Pesatori's recent promotion to vice president of worldwide sales and marketing, observers say it is evident Digital is serious about moving its other systems in this direction, as well.

Pesatori said the unit currently sells 50% of its wares through indirect channels, which he started signing on last summer.

But to reach the Top 5, Pesatori said he is shooting for an even higher ratio of indirect sales. "I would believe a 70-30 [ratio] is the right balance," pushing to 80-20. We're only going to deliver direct to strategic accounts or those that want to deal directly," he said.

In order to reach a higher indirect ratio, Digital is now trying to crack the retail market, although analysts questioned its potential for success there.

Venter also said Digital could lose its best attribute by selling indirect. "I'm not sure they'll do that well selling to people they don't build relationships with," he said.

Wanted: New customers

Digital's second big challenge is to attract buyers outside its customer base. Right now, Pesatori said 60% of sales are to the installed base, and he's aiming for 40% by year's end.

Where Digital has true potential, analysts said, is in what it can add to portables and personal digital assistants (PDA), given its networking expertise.

Digital says it will ship its own portables by year's end. "I hope it's something special," Venter said, referring to wireless capabilities and telephone integration. "Every corporate desk has a phone and a PC. Why not make it so if you call me and leave a message, it remembers the phone number so I just have to press a key to call you back?"

Digital said a PDA is in the works, but it will not ship one this year.

Pesatori said the unit is profitable, even though it is not a high-margin business. "It could be a multibillion [dollar] contributor if Digital plays its cards right," said Jonathan Eunice, an analyst at Illuminata in Hollis, N.H.

Jeffrey Henning

PowerPC not living up to promise

Apple appears to be successfully making the transition from its Motorola 680X0 Macintosh computers to PowerPC Macintoshes, having sold 145,000 units in the last quarter. Customers are, for the most part, delighted with the PowerPC Macintoshes' emulation of 680X0 applications and the speed of native applications, if a little disappointed with the performance of Windows emulation. PowerPC Macintoshes will be a success, but Apple is missing its opportunity to become an open systems vendor.

Apple is overlooking the chance to set standards with the PowerPC Macintoshes: first, to create a cohesive hardware platform, and second, to build a vibrant collection of native PowerPC applications.

Unified PowerPC a myth

Apple, IBM and Motorola talk about the PowerPC as if it were a single platform. A unified PowerPC is as much a myth as a unified Yugoslavia once was, the partners have Balkanized PowerPC. There's an Apple PowerPC Macintosh, an IBM PowerPC RS/6000 and the vendor-independent PREP (PowerPC Reference Platform) architecture. Contrast this with what is popularly referred to as the Intel platform, an industry-standard architecture introduced by IBM but expanded upon by many third parties, enabling the same software to run on thousands of machines from hundreds of vendors.

By failing to develop a unified platform, IBM, Apple and Motorola are splintering their already small market, confusing users and discouraging developers from supporting PowerPC. To dramatically expand its market share, as opposed to merely satisfying its installed base, Apple needed to have taken more of a hand in forging PREP. As the volume leader of PowerPC, Apple should have had a strong bargaining position to win its way at the negotiating table and should have pushed to create a PREP platform to which it could migrate all of its Macintoshes. A unified PowerPC architecture would have made a formidable competitor to Intel, leveraging as it would have PowerPC's superior price/performance. By squabbling amongst themselves, the PowerPC partners are their own worst enemies.

Apple is not just missing opportunities in the hardware arena. While Apple will show up on corporate users' radar scopes now that the PowerPC can run Windows applications, this capability risks torpedoing Macintosh application developers. As the hardware progresses and Windows is used on more Macintoshes (the current requirement for 16M bytes of memory is daunting), many developers will decide they don't need to create Macintosh versions of their Windows applications — interested Macintosh users can simply run their Windows application in emulation mode.

This submarines the desire of many Macintosh users to rise above Intel X86 performance levels, since running Windows applications in emulation means that users miss out on the performance benefit of the PowerPC microprocessor. Many users will settle for this if it enables them to run specialized vertical market Windows applications that would not be available to them otherwise.

Fear of the few

However, wherever possible, users will flock to native applications. Even as "good money drives out bad," native applications will drive out the Windows immigrants wherever they go head-to-head. The fear for the PowerPC purchasers is that there will be too few native applications. Right now, Apple has persuaded only 150 of its 2,000 independent software vendors to develop native PowerPC software; when even a company with the battle chest of Lotus decides it can't devote resources to PowerPC Macintoshes, the Macintosh platform will suffer.

Apple must take the blame for this. It should have created a C development environment that would have enabled independent software vendors to easily develop for both Macintosh and Windows environments. Apple has long promised this with a package named Bedrock, but over the years Apple has fumbled Bedrock's strategy and delivery dates, playing Fred Flintstone to Symantec's Barney Rubble as the partners tried to bring the product to market.

It could have been better

By failing to ship Bedrock, Apple ignored its developers' desire to support Windows, like a parent teaching abstinence rather than recognizing the reality of what was going on behind its back: Apple should have realized sooner that it could no longer rely on its applications to differentiate its operating system but would have to rely more on providing innovative operating system services such as QuickDraw GX and the Apple Open Collaboration Environment.

Yes, Apple has sold 145,000 PowerPC Macintoshes, but it could have sold more PREP Macintoshes had it laid the groundwork properly and enabled its software partners to develop for the Macintosh and Windows simultaneously. Apple will succeed, but its future looks much like its past: great technology but missed opportunities.

Henning is associate director for personal systems and software publications at BIS Strategic Decisions. He can be reached at 649-6654@MCImail.com, and on MCI Mail at 649-6654.

A new option for data analysis

By William Brandel

Noting that analyzing data has become as complex for users as getting the data from the database, Computer Concepts Corp. in Bohemia, N.Y., has rolled out what it claims is an easy-to-use data access and analysis product.

Unlike database tools, which require a degree of programming and customizing, D. B. Express for Windows Version 2.1 enables users to analyze data through multidimensional views. The product offers users a menu bar interface from which they can determine what type of view they need for the data analysis they are performing.

"The product is an end-user application, not a tool," said Howard Dresner, an analyst at Gartner Group, Inc. in Stamford, Conn. "It lets the user perform custom views but does not let them customize the view."

Using D. B. Express for Windows 2.1, end users can perform imports of single tables from most databases with a single mouse click. This is particularly useful at sites where end users, who often lack programming capabilities, need to access and manipulate data themselves.

The product also makes it easy for end users to analyze and present data. It includes dynamically linked graphics, which the user can manipulate using a menu bar interface. It also includes an integrated report writer for publishing query results.

"Our analysts are using it, and it only took about an hour of training to get them going," said James Hanley, vice president and assistant development manager at James Capel, Inc., an international brokerage house based in London. "It has been helpful in their efforts to do charting or to query the data. The bottom line is that it is very user-friendly."

A bevy of choices

The product comes in two configurations. The Personal Edition provides direct access to Xbase, Borland International, Inc. Paradox and ASCII tables. The Office Edition provides connectivity to more than 30 relational databases, including Borland's dBase, Microsoft Corp.'s Excel and FoxBase/FoxPro, Lotus Development Corp.'s Approach, The Ask Group, Inc.'s Ingres, Oracle Corp.'s Oracle and Sybase, Inc.'s SQL Server.

The Personal Edition carries a list price of $195 per license, while the Office Edition carries a $395 tag. Both are scheduled to be available next month.

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Video compression

Future technology edges toward present

By Michael Fitzgerald

The world of video compression sounds weird. It is populated by products with strange names such as Indeo, Captain Crunch and the PEGs, M and J. They are very different and very likely a part of the future.

These names, along with SuperMac Technology, Inc.'s Cinepak, represent the main efforts to get television-smooth images across the computer screen.

MediaVision's Captain Crunch, Intel Corp.'s Indeo, Moving Photographic Experts Group (MPEG) and Joint Photographic Experts Group (JPEG) offer different ways to compress and decompress video images.

Working for acceptance

Two of them, MPEG and JPEG, are accepted ANSI and International Standards Organization (ISO) standards. The others are trying to build strength in the market.

"MPEG will serve a role similar to TCP/IP in the networking industry — it guarantees interoperability while still letting vendors differentiate his products," said John Chun, vice president of marketing at FutureTel, Inc., which recently introduced a compression board.

The compression market is small now and matters mostly to people who do professional presentations, high-level stuff that needs costly hardware and software. For the typical corporation, full-motion video "is too expensive, and there's nothing practical to use it for right now," said Victor Mutnick, corporate vice president of information systems at New York Life Insurance Co.

Those technologies that are less expensive, such as Indeo or Apple Computer, Inc.'s QuickTime, can convert the analog images of full-motion video into digital images that can be played on a PC, but they run slowly and in tiny boxes on the screen.

Because of the slow speed and low resolution of the images, it makes little sense for a user to attach a personalized instruction that includes his face and voice as part of a message. Analog-to-digital compression takes up a lot of room on hard drives — one minute of full-motion video, with sound, needs one gigabyte of disk space.

But several things are happening that might start to change this.

"This is the same issue of using color eight or 10 years ago, particularly color printers — the technology was there, but it was very expensive," said Jack Gold, an analyst at Meta Group, Inc. in Westport, Conn. Gold predicted that compression and decompression will become a regular low-cost feature of systems in the next few years.

Currently, low cost is a relative thing; typically, the equipment needed for television-quality images costs between $20,000 and $30,000. So it was a major breakthrough when FutureTel in Sunnyvale, Calif., last week released PrimeView, a $9,995 board that does real-time MPEG compression. Based on a RISC chip from C-Cube Microsystems, Inc., the board targets software developers.

That $10,000 price tag is not peachy for the average desktop user of full-motion video, however. FutureTel officials expect their board, which complies with the MPEG 1 standard (MPEG 2 is not yet an official ISO standard), will drop rapidly in price, particularly as competitors bring their products to market.

A developing market

But the market is still developing even at the component level. Pixel Semiconductor, a division of Cirrus Logic, Inc., recently came out with three processors, one that does digital-to-analog conversion, another that does analog-to-digital conversion and one that is a real-time digital video processor that will both decode and encode TV signals to enable them to run on a PC.

Missing from the announcement was a compression chip. Pixel does plan to introduce a compression chip at some time, said Gerald Wineinger, Pixel's director of marketing.

Compression is still so nascent that one player in the graphics market, Weitek Corp., took no chances with its recently debuted Power 9100 graphics controller, which works with MPEG, JPEG, Captain Crunch, CInePak and Indeo.

Compression presses on

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Image speed		
Storage		
Price		

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Personal digital assistants

Compaq's Mobile is immobile

By Michael Fitzgerald
HOUSTON

Compaq Computer Corp.'s Mobile Companion project has gone almost immobile as the company decides just what a Mobile Companion should be, officials said recently.

Mobile Companion was announced with much fanfare last September as the result of a partnership of Compaq, Microsoft Corp., Intel Corp. and VLSI Technologies, Inc. The project, essentially the Microsoft/Intel world's response to Apple Computer, Inc.'s Newton and several other personal digital assistants (PDA), was delayed earlier this year, in part because of Newton's troubles in the market. Now, Compaq says the product will not be released until 1995.

"We are in a reevaluation state, and we do not have a specific, defined project we are working on," said Lorie Strong, vice president of portables marketing at Compaq. Strong said Compaq "believes we will still end up with a product that runs WinPad" but is not sure what it will be. WinPad is a version of Microsoft's At Work for Handhelds software, which gives office equipment the ability to run scaled-down versions of Windows.

Besides Newton's troubles, officials decided to rethink the design of Mobile Companion because it lacked a keyboard and because Compaq could not find a way to sell it for less than $1,000.

Strong said good sales of Compaq's Contura Aero subnotebook added to the indecision over what Mobile Companion should be. In many ways, Aero achieved much of what Compaq thought a "mobile companion" product would do, she said.

Gadgets are no good

Janet Cole, an analyst at Dataquest, Inc. in San Jose, Calif., said Compaq was smart to wait. Many of the PDAs on the market are mere "gadgets," she said, and "the market needs more than just the gadgets — it needs a wireless infrastructure. Without wireless communications, what good are these things?"

Compaq's period of meditation means it will not beat some of its competitors to market. Several other companies, among them Toshiba America Information Systems, Inc. and AT&T Global Information Solutions, the former NCR Corp., are expected to release mobile companion-type products this year.

Speech recognition

Kurzweil is first with dictation product

By Ellis Booker
CHICAGO

Kurzweil Applied Intelligence, Inc., an innovator in the speech-recognition market a decade ago, has begun shipping Kurzweil Voice, a general-purpose speech-recognition dictation product, and the first to run under Windows.

So-called "command and control" speech-recognition systems are already available under Windows. These products allow users to control application programs and a variety of Windows functions with voice commands.

First in line

But Waltham, Mass.-based Kurzweil is the first with a Windows-based dictation product. The speaker-independent system comes with either a 30,000- or 60,000-word active vocabulary and uses acoustic recognition models and spelling to boost its vocabulary to 200,000 words.

As important as its Windows support is the "very aggressive pricing" of the product, according to Jeffrey Tarter, publisher of "Soft Letter," a software industry newsletter in Watertown, Mass.

Kurzweil Voice sells for $995. It includes a digital signal processor sound board and a microphone.

Still, Tarter said he wonders whether voice recognition, which Kurzweil and other vendors have sold successfully into vertical markets such as health care, can be made attractive for the broad consumer market.

"It's still an open question if there will be hundreds of thousands of people paying $1,000 to talk to their computer," he said.

Tarter noted the danger of the "*Star Trek* syndrome," whereby the expectations of the market outpace what a technology — such as voice recognition or pen-based computing — can deliver.

But Raymond C. Kurzweil, chairman and co-chief executive officer, said he is optimistic about the prospects of speech recognition and its synergy with another technology: Mobile computing.

"Although our immediate focus is on reaching all of the Windows-based desktops in business and professional environments, I fully expect [our product] to be an integral part of mobile computing solutions within the year," he said.

> "I fully expect [our product] to be an integral part of mobile computing solutions within the year."
> — *Raymond C. Kurzweil*

Kurzweil Voice for Windows Release 1.0 requires an Intel Corp. I486DX 33-MHz or higher microprocessor with either 8M or 16M bytes of memory and 30M bytes of hard disk space. The first version of the product supports the Kurzweil sound board and microphone, although future versions will accept hardware from third parties.

Meanwhile, Dragon Systems, Inc. in Newton, Mass., plans to introduce a Windows version of its DragonDictate line of speech-recognition systems this summer. In March, Dragon released three DragonDictate systems for DOS, ranging from a 5,000- to a 60,000-word vocabulary system.

Briefs

HP raises the printer bar

Hewlett-Packard Co. took a leap in desktop printer technology as it unveiled two laser printers that produce 12 pages per minute, up from the previous limit of eight pages per minute. The LaserJet 4 Plus, priced at $1,899, and LaserJet 4M Plus, priced at $2,479, yield 600- by 600-dot/in. resolution. The former is for workgroup use, and the latter is for mixed computing and Macintosh environments.

Compaq, PictureTel team

Compaq Computer Corp. has signed a deal with PictureTel Corp. to build videoconferencing capabilities into its desktops, according to sources close to both companies. Desktop videoconferencing is expected to appear in the late third or early fourth quarter in Compaq's recently announced high-end DeskPro/XL. Compaq will be able to support this through the VESA Advanced Feature Connector, a standard graphics-to-video subsystem connector.

Word processor fixes arrive

By William Brandel

Two of the industry's most popular Windows-based word processors are in need of a little shoring up, according to their manufacturers.

In recent weeks, both Microsoft Corp. and WordPerfect Corp. have announced that bug fixes are required for their word processors, and they have released patches for the faulty products.

Last week, WordPerfect made available WordPerfect 6.0A for Windows. While the interim release includes some bug fixes, it also offers new features (see chart).

A WordPerfect spokeswoman said she could not recall any specific bugs in the product but said the new version was more reliable and stable than the 6.0 release.

Big freeze

"The biggest problem was stability," said Marilyn Rubin, manager of word processing at a Chicago-area insurance brokerage. Rubin said 90% of her company's end users use WordPerfect for text processing. "You just never knew when it was going to freeze."

Rubin said she was very pleased with the interim release of the product. In addition to performing better, it takes up approximately 6M bytes less storage space, she said.

Meanwhile, Microsoft is sorting out a number of its own bug fixes. After posting a maintenance release for Word for Windows 6.0 earlier this year, Microsoft has now reported that a fix is required for some customers who purchased upgrade versions of Microsoft's Office Standard 4.2. The bug has been making it difficult for users to complete the install process. Microsoft has posted a work-around on CompuServe.

More than a bug fix

WordPerfect throws in more features with the WordPerfect 6.0A interim release

- Corrects mistyped or misspelled words
- Offers help for WordPerfect for DOS users, as well as other word processors
- Gives WordPerfect 6.0A users full drag-and-drop capabilities for the OS/2 Workplace Shell
- Lets users uninstall unnecessary components of WordPerfect 6.0A
- New document templates
- New button bars

This summer, Microsoft will post a maintenance release for its Office 4.2 product suite that addresses Excel and PowerPoint, said Robbie Bach, group product manager for Office. This release will include support for the Notes/FX development interface, Bach said.

IF YOU'RE IN SONOMA, CALIFORNIA, THERE ARE 65 PEOPLE WHO CAN HELP YOU BUILD AN INFORMATION SYSTEM WITH WINDOWS NT.™

MicroNet Technology, Inc. has introduced the Advantage Series, a line of SCSI data storage products for the Macintosh.

According to the Irvine, Calif., company, the series consists of internal and external hard drives with capacities ranging from 170M bytes to 1G byte; SyQuest Technology, Inc. removable drives; internal and external rewriteable optical drives with capacities of 128M and 230M bytes; CD-ROM; tape backup systems; and accessories.

The line offers removable media systems that range from 44M bytes up to 270M-byte, 3½-in. and 200M-byte, 5¼-in. cartridge drives.

Prices start at $299.

▶ *MicroNet Technology*
(714) 453-6000

Disk Technologies Corp. has introduced the RoadRunner Express XD Series, external hard drives that offer support for the Enhanced Parallel Port, Extended Capabilities Port and standard and bidirectional parallel ports.

According to the Winter Park, Fla., company, the plug-and-play external RoadRunner Express Series works with any desktop, notebook or subnotebook computer with a parallel port.

Available in 210M-, 340M- and 540M-byte units, the RoadRunner Express XD Series weighs 1.8 pounds and offers a transfer rate of 1M byte/sec.

Prices range from $495 to $795.

▶ *Disk Technologies*
(407) 671-5500

Platinum Software Corp. has introduced FRX for Windows, software that provides flexibility in building and executing corporate financial reports.

According to the Irvine, Calif., company, FRX for Windows runs under Windows 3.1 and offers an intuitive graphical user interface, multiuser capability and context-sensitive, on-line help.

Users can perform unlimited cut, copy and paste operations.

The product is available exclusively for use with the General Ledger modules of the company's Sequel to Platinum, Platinum Premier and Platinum Series financial software products.

Pricing starts at $3,500.

▶ *Platinum Software*
(714) 727-1250

DataViz has introduced Version 2.5 of Conversions Plus for Windows.

According to the Trumbull, Conn., company, Conversions Plus contains a Macintosh disk-mounting utility and a full-file translation library.

Conversions Plus for Windows houses file translation combinations for popular word processing, database, spreadsheet and graphics programs.

Additional translation paths are included, and the product provides bidirectional translations between Macintosh and PC programs, as well as file translations among PC programs.

Conversions Plus Version 2.5 costs $149.

▶ *DataViz*
(203) 268-0030

Attain Corp. has introduced in Control 3.0, a planning and organization tool that helps users plan by combining a flexible, multicolumn outline with daily, weekly and monthly calendars.

According to the Somerville, Mass., company, In Control 3.0 features a multicolumn action outliner to track and manage activities, daily views that show all activities for a specific day, a daily schedule that displays appointments by time slots and instant lookup to access phone numbers and addresses.

The product also provides instant access to popular database and contact management programs.

In Control Version 3.0 costs $129.95.

▶ *Attain*
(617) 776-1110

Product short

Associated Data, Inc. has introduced the Time Accountant, a fully automated time and attendance system. Features include automatic calculation of hours worked based on specific company pay rules and the ability to generate an electronic time card on-screen. The system comes equipped with DOS-based software. Cost: $995. Associated Data, East Providence, R.I. (401) 438-5500.

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Bill Inmon, creator of the data warehouse.

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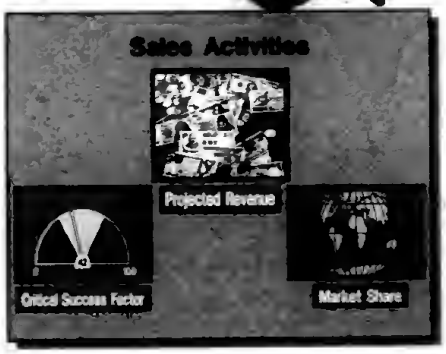

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David Coursey

A bad time to buy E-mail

If someone is pressing you to install a new E-mail system, please photocopy this column — you have my permission — and send it to the offending, though well-intentioned, bumblehead.

Dear Bumblehead:

I am writing on behalf of (fill in your name here) to explain why your request for a new E-mail system is, well, ahead of its time. The problem is that the three major vendors of LAN-based mail systems are suffering major growing pains, and it will be early next year — at the earliest — before things settle down.

It used to be easy to choose an E-mail system: If you had Novell NetWare, you bought CC:Mail — unless, for some unfathomable reason, you were running Message Handling Service, in which case you bought whatever the person who installed the network sold you. Macintosh users, for the most part, got CE Software's QuickMail, and Unix-heads got what they had coming to them.

This E-mail-by-default selection process worked pretty well until we got big heads and decided that E-mail wasn't just mail, it was electronic messaging. This shift, which is under way right now, stopped mail development in its tracks on both the PC and the Macintosh. Which explains why we were treated to the (eventually meaningless) mail API wars. Remember the

Coursey, *page 60*

Sybase or Microsoft?

Split between co-developers divides SQL Server customer base

By Kim S. Nash
SAN JOSE, CALIF.

Who gets custody of the kids now that Sybase, Inc. and Microsoft Corp. have split up over their codeveloped SQL Server database?

That was a big question for attendees of Sybase's international users group meeting held here recently.

For shops planning to install Microsoft's Windows NT to run client/server programs, a reliable answer about where to buy databases is not a simple proposition, according to two dozen users and analysts interviewed before and during the show. Factors such as technical support and pricing weigh heavily — and have divided what had been a cohesive SQL Server user base.

Uneasiness about the split focused on the following three issues:

- Whether Microsoft will build heavy-duty transaction-processing features, such as data replication and support for high-end parallel processing, into its version.
- Whether Sybase will cut prices or offer more price-point options.
- Whether both vendors will keep promises about continued compatibility among SQL Servers.

"We're pleased with NT, but this [split] really clouds the issue," said Dan Chorney, a database analyst at Chevron Canada Ltd. in Vancouver, British Columbia. The company wants to drop IBM OS/2 systems in favor of Windows NT and is now collecting bids from Sybase and Microsoft for database contracts.

Microsoft and Sybase last month amended their 1987 pact to share development of the SQL Server database. The move allows each firm to take its respective products in different directions.

Complicating Chevron Canada's decision is the fact that many of its applications were written with APT, Sybase's character-based development tool. "As Microsoft builds on [SQL Server], APT programs will be less and less compatible," Chorney said. "But if Sybase keeps its current pricing structure, that could be a deciding factor for us, too," he added.

Sybase plans improvements

In keynote speeches to several hundred user group attendees, senior Sybase executives promised product and support improvements this year and next. Tighter security and better systems management features are due for Sybase SQL Server during the next year, said Mark Hoffman, Sybase's chief executive officer.

But in building such enhancements, Sybase will propel SQL Server further away from Microsoft's version. The SQL Server plans outlined by both companies for Windows NT versions of the databases are forcing NT users to choose between two vendors they once thought would be working together, said Richard Finkelstein, an analyst at Performance Computing, Inc. in Chicago.

Some users who bought SQL Server from one vendor thought they were buying smooth scalability to products from the other vendor, according to Greg Hamer, a database technician at Bankers Trust Co. in New York. Scalability "is no longer a given if Microsoft and Sybase

Sybase, *page 56*

NetWare version of Legent's Paradigm in the offing

By Rosemary Cafasso

Legent Corp. plans to ship a Novell, Inc. NetWare version of its Paradigm problem management software, which it hopes will inch the company closer to its goal of providing a series of systems management tools across heterogeneous networks.

Legent also said it is preparing gateway products to link Paradigm to existing host-based problem management products such as IBM's Infoman. However, company officials would not provide a delivery schedule.

Wireless, too

In a separate announcement, Legent last week said McCaw Cellular Communications, Inc. will extend its use of Paradigm to its Airdata wireless network service.

McCaw currently uses Paradigm for its internal data network and the Airdata operations center. The software will be used by Airdata administrators to better manage the wireless service, the companies said.

Paradigm is a problem management and trouble-ticketing system that tracks system trouble or failures and then dispatches service jobs. It also maintains activity records. The software was developed by a small company called Networx, Inc., which Legent acquired last year.

IBM uses the Paradigm technology as part of its NetView/6000, and Hewlett Packard Co. last month said it would resell the software.

Last week, Legent officials said the plan is to ship versions of Paradigm that support Legent's Cross Platform Environment (XPE) architecture to provide this integrated environment.

System management

Middle management

XPE is Legent's strategy for providing several systems management functions that can be supported centrally and handle different platforms.

The XPE-enabled versions of Paradigm are supposed to ship with Legent's recently announced middleware product, XPErtware. This would allow the different Paradigms to interact and report to a central Paradigm management console.

"Legent's whole XPE strategy gets some benefit from [the Novell announcement] in that it gives Paradigm and its integration strategy more visibility," according to Rick Villars, director of network management research at International Data Corp. in Framingham, Mass.

David Ward, a Legent customer and manager of worldwide network operations at American Greetings Corp. in Cleveland, said he is interested in the recent Paradigm for NetWare announcement.

However, Ward also wants to see what Legent will deliver on the host gateway front before he commits to Paradigm.

"If I can't do host-based problem management with it, I am sure not going to go out and bring in a completely different distributed problem management system," Ward said. "We have IBM's Infoman . . . and we can't live without it. You have to bridge the distributed world to the legacy problem management systems."

Committed support

Christopher Slat, a Legent vice president, said the company is committed to supporting non-Legent host products in a Paradigm environment.

In addition to the plans for gateways, Legent is publishing application programming interfaces for XPE that could be used to link customers' homegrown systems to Paradigm, Slat added.

The company said it will sell Paradigm for the Novell platform at a discounted rate of $4,995 through the end of the year. The price includes a license for five Windows clients, Unix server software, an administrative client and an interface to Novell's NetWare Management System.

PC servers

HP rolls out line of low-end servers

Products' competitive prices and scale-up opportunities attractive to users, but commonplace

By Mark Halper
PALO ALTO, CALIF

Hewlett-Packard Co., which in the last two years has transformed its PC presence from an afterthought into a major player, recently continued its forward press by unveiling low-end servers that put it in the price-performance vanguard.

Pricing for the HP NetServer LC server family starts at $2,629. This puts HP at the forefront of entry-level offerings from competitors such as Compaq Computer Corp. and Dell Computer Corp., whose products begin in the $3,000 range, said Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass.

HP said the three-model LC series will ship next month, one with an Intel Corp. 66-MHz Pentium processor and two with 486 processors — a DX2/66-MHz 486 processor and a DX4/100-MHz 486 processor, which can be upgraded to Pentiums (see chart). The series supports the Peripheral Component interconnect (PCI) bus.

All three are equipped with six expansion slots — one PCI, one PCI/Extended industry Standard Architecture (EISA) and four EISA — and five storage bays. An external EISA disk array is optional.

The company is selling two network management software products for the series: NetServer Remote Assistant for $495 and NetServer Assistant 2.0 for $999.

4/66	$2,629
4/100	$3,129
5/66	$4,629

One of many

Although some users said they are impressed with HP's aggressiveness, some viewed the company's low-priced servers as simply the latest in what has become commonplace price reductions.

"I'm very happy for HP, but this is getting a little tiresome," said Sam Ellis, associate vice president of information services at Portland Community College in Oregon. "I don't want to sound cynical, but I'm a little burned-out on the PC marketplace. Every week someone has something that's bigger or faster."

Isaac Blake, technical support and systems manager for the city of Tempe, Ariz., commended HP for its attractive pricing, noting that it gives users an opportunity to scale up after an initial low-cost entry.

However, Blake noted, it may be more prudent in the long run for users to purchase high-end servers running multiprocessing schemes and capable of supporting a larger number of nodes.

This is because multiprocessors would reduce the number of servers overall, and the cost of administration and support goes down as the number of boxes decreases, he said.

Bigger is better

Dave Broisma, manager of information systems at Chrysler Corp. subsidiary Acustar Electrical in El Paso, Texas, said even if he had a need for a server he would probably buy something larger than an LC to accommodate future growth.

Broisma uses a number of HP servers now and paid about $4,500 for an HP NetServer LM earlier this year.

While that model now supports six Windows clients on Novell, Inc.'s NetWare 4.0, he anticipates adding users in the next two years and taking advantage of its 60-node support, he added.

Sun overhauls workstations, cuts costs

Vendor takes on Pentium-powered PCs and high-end Unix competitors

By Jean S. Bozman

Sun Microsystems, Inc.'s spring revamp of its workstation product line has already boosted performance and cut prices for early users of the low- and high-end workstations.

Users said they are installing the low-end SPARCstation 5s as upgrades to low-end SPARCclassics and SPARCstation LXs and the high-end SPARCstation 20s as upgrades for older SPARCstation 10s. But early users of the SPARCstation 20 said they were surprised that the system's strong price/performance outpaced the SPARCstation 10 for substantially less money.

The SPARCstation 20 was announced in late March as Sun recast its entire workstation line [CW, March 28]. At the same time, Sun introduced the SPARCstation 5 as a replacement for the SPARCstation LX and cut entry-level SPARCclassic prices from $3,995 to $2,995.

Users applaud

The overhaul in workstations, which collectively account for more than 75% of Sun's revenue, was welcomed by users looking for Sun to overtake price/performance levels set by other vendors.

Now some early users say Sun has done just that.

"I'm getting dramatically more performance for 10% less price" than older SPARCstation 10s, said Walter Herrick, manager of data operations at the University of California at Berkeley's Space Sciences Lab. "I don't think these machines will cause us to do things any differently, but they will cause us to do things faster and better."

Many Sun shops have SPARCstation 20s on order or already installed as departmental Unix servers or powerful desktop workstations. The new workstations quench a pent-up demand for more powerful SPARC machines, industry analysts said. Volumes for the new units are running high, according to several Wall Street analysts.

Powered and ready

With the two new products, Sun responded to challenges from PCs based on Intel Corp.'s Pentium chip and from high-end workstation rivals Hewlett-Packard Co. and Silicon Graphics, Inc. (SGI).

"The SPARCstation 5 was sorely needed because the 50-MHz MicroSPARC chip in the Classic and the LX was underpowered," said Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. The SPARCstation 5's new MicroSPARC II chip "keeps Sun within the range of performance of Pentium," he said.

On the high end, the SPARCstation 20 performed about 40% faster than the SPARCstation 10 for a typical configuration, while the cost of installing that level of performance fell by about 30%, he said.

Some early sites acquired multiple units as upgrades. Halliburton Corp.'s Energy Services technical center in Dallas installed 84 leased SPARCstation 20s last month for use as powerful single-user workstations for computer-aided design (CAD) applications.

"Bringing in the SPARCstation 20s was cheaper than what we would have paid to renew our [existing] lease," said Dan Herron, a senior CAD systems specialist. The company expects to install more in coming months as replacements for older SPARCstation 10s and Sun IPX boxes, he said.

Northwest Natural Gas Co. in Portland, Ore., plans to install 250 SPARCstation 5s as clients for a customer service application that previously ran on an IBM mainframe. The Sun desktops will be used to access an SGI Challenge L server running a Sybase, Inc. relational database. The first units are already in place.

Catch-22

Some industry analysts cautioned that Sun's aggressive workstation price/performance could gain market share for the $4.3 billion company at the cost of higher profits.

"In terms of catching up with the crowd, Sun didn't pass by Digital Equipment [Corp.] or Silicon Graphics in performance," said Terry Bennett, a senior analyst at Computer Intelligence/InfoCorp in Beaverton, Ore. "But they're doing a great job of chasing prices down."

However, price competition could heat up because HP and IBM are both expected to announce new workstations this month, Bennett said.

Sybase

CONTINUED FROM PAGE 55

are competing like this," Hamer said. "People will have to evaluate them separately."

Meanwhile, customers who have not chosen a database yet — but who are sure they want Windows NT — are looking for guidance. Show attendees said they were talking to Sybase about its System 10 for NT plans and weighing what they heard against Microsoft's stated goals.

The conventional wisdom is that Sybase runs rings around Microsoft in technical support and consulting services, particularly in tackling tough problems that arise with enterprise-level applications.

What a deal

Microsoft, however, cannot be beat on pricing, users said. For example, Voest-Alpine Services Technology recently purchased three 64-user licenses from Microsoft for SQL Server for NT for $7,000, according to Gerhard Karba, president of a consulting firm that handled the project. Price quotes from Sybase were "two or three times more," he said.

Sybase pricing depends on the number of users and class of hardware, which means that adding nodes to a given application could jack up database license fees.

"Sybase nickels-and-dimes me for every kind of [user] I want on the server," said Mike Fitzmaurice, MIS director at the National Association of Broadcasters in Washington. "Guess which company I'd rather do business with?"

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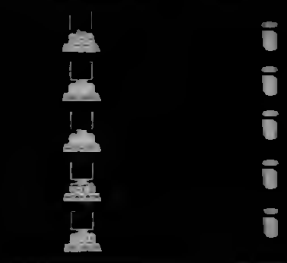

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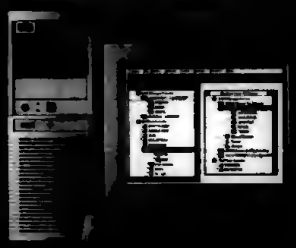

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TI enters client/server arena

By Lynda Radosevich

Texas Instruments, Inc. recently announced the first piece of a family of client/server applications for material management

Called the Express Buy Catalog, the application helps companies create their own electronic catalog of inexpensive commodity items for which the companies have negotiated high-volume purchase agreements with suppliers It allows end users to select the items that they need — a crate of pencils, for example — and order the item from the supplier for a fixed price using electronic data interchange (EDI).

The idea behind the system is to separate the process that companies use to buy high-cost strategic items from the process they use to buy low-cost items.

"Major customers have only one purchase process regardless of the value of the items. That's a waste of money," said Harry Tse, a director of research at The Yankee Group in Boston. "The government is famous for spending great sums on paper clips because the paperwork costs more chips."

The Express Buy Catalog could help reduce the paperwork and the number of steps in the approval process, Tse said.

TI first developed the system for internal use after realizing it used the same process for purchasing commodities as it did for more expensive items, said Les Wyatt, director of strategic marketing at the enterprise solution division of TI

Speeds process

That buying process took 16 days on average, from requisition to purchase order By automating the approval process and order entry for prenegotiated low-budget items, TI dropped the purchase cycle to one day, he said.

Many companies are implementing similar systems on their own, Tse said, but he is not aware of other commercially available systems.

The Express Buy Catalog features include a Windows client interface, electronic catalog with on-line descriptions and prices, receipt and payment on supplier ship notice and purchase orders via EDI.

The system runs on a Hewlett-Packard Co HP/UX server with Oracle Corp or Sybase, Inc. databases or on an IBM MVS/CICS mainframe running DB2

Pricing starts at $160,000 and a major component of the system is TI's business process redesign consulting, which varies in price depending on the customer

Coursey

CONTINUED FROM PAGE 55

breathless trade media accounts of VIM vs MAPI? I do, having written a few of them, and I now find myself wondering what all the fuss was about

Lotus and Microsoft are re-engineering their mail platforms from top to bottom At Lotus this seems to have been going on since the dawn of recorded history, while Microsoft has been at it merely since the birth of Christ Microsoft's Enterprise Message Server should be in beta testing this summer and out the door by year's end Lotus is committed to shipping Lotus Communications Server in about a year, although I wouldn't recommend holding your breath until the beta product really ships

WordPerfect, which has carved out a nice niche with its Office E-mail/calendaring package, is in the throes of merging with Novell This would make me a bit leery of plunking down big dollars until things settle down

Of course, if your mainframe E-mail costs you so much that you positively have to do something right away, all three vendors offer good mail solutions — just be aware that you might want to move to something else in 18 to 24 months.

> Committing to Microsoft's Mail means making a big commitment to the Microsoft way of doing things.

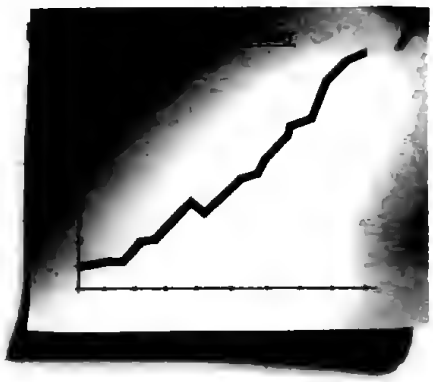
You also ought to know that going with any of the Big 3 means choosing more than just E-mail. As I said, E-mail has become ambitious and now wants to "workgroup-enable" your desktop and build networked calendaring and personal information management applications It would also like to deliver your faxes, answer your phone, integrate with your voice mail and make sure you are wirelessly in touch 24 hours a day on a nearly global basis And that's just for starters.

So committing to Microsoft's Mail means making a big commitment to the Microsoft way of doing things and, probably, to Microsoft applications and tools. Lotus makes it easy for CC:Mail customers to migrate to Notes and use its applications, while NetWare aficionados should find future releases of WordPerfectOffice to their liking.

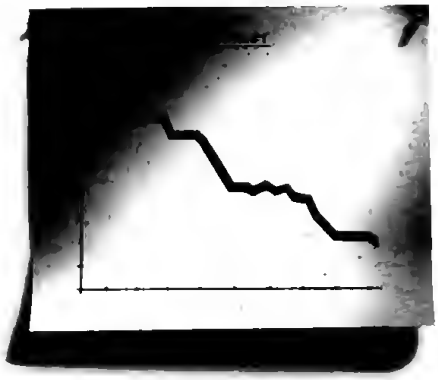
All of this makes it a dreadful time to have to make an E-mail decision. If that's your lot in life, I really feel for you. A six-month vacation would probably be the best solution.

Coursey is editor of "P.C. Letter," a San Mateo, Calif., industry newsletter His MCI Mail address is 558-4460.

Your Boss's Expectations



Your Budget



The executive committee has decided that your company's key to sustainable competitive advantage is a flexible information system — one that can speed up your processes and let you react quickly to change. Unfortunately, they've also decided to cut your budget.

Most likely, this leaves you with a mainframe system that can't fill the bill and an accounting department that won't take kindly to larger monthly bills.

Of course, most members of today's executive committees have read an article or attended a seminar touting the wonders of economical mainframe alternatives and flexible client/server databases. So the answer probably seems simple — to them. But you've got to make it all work in the real world.

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Solectek Corp. has introduced Airlan/Parallel, a battery-powered wireless Ethernet adapter that attaches to any parallel port, enabling untethered mobile LAN connections and seamless compatibility between wired and wireless networks.

Airlan/Parallel offers integrated 9-in cable plugs that fit any parallel port, including undirectional, bidirectional and high-speed Enhanced Parallel Ports.

Airlan/Parallel costs $699 and includes the adapter, installation software and optional power supply with a 2-ft extension cable.

▶ *Solectek*
(619) 450-1220

Carrera Computers, Inc. has introduced the Cobra AXP 275, a RISC PC.

According to the Laguna Hills, Calif., company, the system is based on Digital Equipment Corp.'s Alpha AXP 21064A 275-MHz chip.

The Cobra AXP 275 is available in a variety of configurations and includes standard features such as a 128-bit memory bus, a 128-bit processor bus, two 32-bit Peripheral Component Interconnect buses (PCI) and three 16-bit XT/AT expansion slots.

The PCs also offer embedded motherboard devices that provide a PCI local bus SCSI-2 controller, a PCI local bus Ethernet controller, two asynchronous serial ports, a parallel port, a keyboard, a mouse and an IBM-compatible floppy disk drive.

Pricing for the Cobra AXP 275 ranges from $7,995 to $13,995.

▶ *Carrera Computers*
(714) 707-5051

UniPress Software, Inc. has introduced LAN Manager for Unix for the IBM RS/6000, a product that allows AIX systems to act as servers for PC client applications on DOS, IBM's OS/2 and Microsoft Corp.'s Windows, Windows NT and Windows for Workgroups platforms.

According to the Edison, N.J., company, the product lets Windows users log into the network from within Windows and use PC applications with point-and-click functionality to access and manipulate data on Unix servers and network resources with the Windows File Manager.

The product has extended interoperability with other LAN Manager servers.

LAN Manager for the RS/6000 is priced at $2,995 for the Model 200 series, $3,995 for the Model 300 series, $6,995 for the Model 500 series and $8,995 for the Model 900 series.

▶ *UniPress Software*
(908) 287-2100

Digital Communications Associates, Inc. (DCA) has announced the Irma Workstation for Open Systems (IWOS), software that enables PC users to simultaneously access an assortment of host computers including those from Digital Equipment Corp. and Hewlett-Packard Co.

According to the Alpharetta, Ga., company, the product provides facilitated access to the Internet, information services, electronic-mail systems and corporate bulletin board systems.

IWOS interfaces with DCA's QuickApp for Windows 2.1, a communications middleware development tool that integrates information in host computers into new client/server applications.

The product costs $295 and is available in a 10-user MultiPak for $2,095, a 50-user MultiPak for $6,895; and a 100-user MultiPak for $11,595.

▶ *Digital Communications Associates*
(404) 442-4264

Acorn Software, Inc. has introduced Squash for OpenVMS VAX and OpenVMS AXP.

According to the Cambridge, Mass., company, Squash is real-time data compression software that automatically compresses data as it is written and decompresses it as it is read.

The product creates a Squash disk, which is a virtual disk that acts like a standard Digital Equipment Corp. OpenVMS VAX and AXP disk and supports operations such as mount, dismount, shadowing and striping.

Squash features a menu-driven user interface, flexible compression rates for changing technical and business requirements, data safety features and a read-only version for free distribution.

Squash is available for $495 for workstations and $795 for any VAX CPU.

▶ *Acorn Software*
(617) 491-3232

Human Designed Systems (HDS) has added full-motion video capability to its line of RISC-based X Window System terminals.

According to the King of Prussia, Pa., company, HDS Video enables Human Designed Systems terminal users to display full-motion video in up to four windows on their X terminal screen.

HDS Video supports analog and digital video with onboard compression and decompression. The product also supports the Intel Corp./Microsoft Corp. Indeo compression standard as a standard capability and offers Moving Photographic Experts Group (MPEG) 2 video decompression as an option.

Pricing ranges from $199 to $499.

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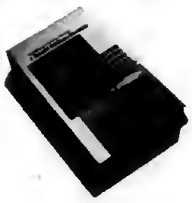

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EDI cures ills of hospital supply procurement

Baxter's legendary ASAP system moves aside

By Mitch Betts

■ Baxter Healthcare Corp., whose proprietary ASAP on-line ordering system was one of the legendary "strategic information systems," is replacing ASAP with a standards-based package that will not be owned by Baxter.

The resulting multicompany initiative will enable all hospital suppliers to compete for business on an equal technological footing — the exact opposite of ASAP's original mission.

OnCall EDI, the software for the new ANSI X12-based "open platform," was developed by electronic data interchange (EDI) software vendor TSI International Ltd. in Wilton, Conn. Suppliers already committed to adopting the system include Baxter for medical supplies; Bergen Brunswig Corp. in Orange, Calif., for drugs; Boise Cascade Corp. in Boise, Idaho, for office products; and Eastman Kodak Co. in Rochester, N.Y., for medical imaging systems.

What has changed is that hospitals will no longer endure different proprietary ordering systems for different suppliers, all of which copied ASAP. "Now hospitals are standardizing, and they want one system" for ordering supplies from multiple vendors, said Dan Browning, director of EDI at Baxter in Deerfield, Ill.

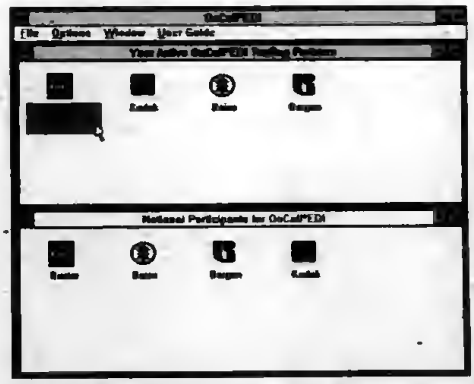
"In the 1990s, competitive advantage doesn't come from the software but from the information you deliver to customers," Browning said. So Baxter will try to deliver information to its customers in a more timely fashion than its competitors. In essence, "Baxter will get out of the software business, turn it over to TSI and stick to its business of distribution," said Curtis Allen, lead buyer at St. Francis Hospital in Tulsa, Okla.

Smarter systems

Another thing that has changed is the technology that suppliers and hospitals use. ASAP began as a mainframe-based ordering system linked to dumb terminals at customer sites, but the terminals were gradually replaced by desktop PCs as ASAP opened its doors to industry standards and other suppliers.

The OnCall EDI software, which runs on desktop computers with Windows as the user interface, includes EDI translation, a built-in database for tracking transactions and interfaces to material management systems. It provides communications support for direct links between hospitals and suppliers, as well as dial-up access to third-party networks.

The initial release of OnCall EDI, scheduled for July 1, will handle purchase orders sent from a hospital to a supplier, purchase order acknowledgments, invoicing and catalog data. Other transactions, such as remittance data, will come later, a TSI spokesman said.



Baxter Healthcare *is swapping its proprietary network for a standards-based system. The first screen looks like this.*

Complete pricing details were not disclosed, but a spokesman said the cost of the basic software will be shared by suppliers and hospitals. On top of that, hospitals will pay $500 for each EDI translation kit tailored to a specific supplier.

Large and small suppliers will be recruited to adopt the TSI software and will, in turn, encourage their hospital customers to do the same, TSI said. The big challenge may be getting the whole industry to agree on one vendor's software package.

Migration from Baxter's ASAP to OnCall "will occur at the customer's demand," Browning said, which he expects to happen during the next two to three years.

Allen, who beta tested OnCall EDI, applauded the fact that the product will provide all 12 of the ANSI X12 transaction sets, compared

EDI, *page 66*

Network support

Novell launches 'exclusive' support system

By Elisabeth Horwitt

Novell, Inc. may find that its recently announced direct support offering, the Corporate Account Program (CAP), alienates some major customers.

CAP, introduced earlier this month, provides more kinds of direct and ongoing support to shops that spend at least $250,000 on Novell products annually [CW, May 2]. Services include early information on products, participation in special interest groups and an on-site Novell account manager.

The program provides the kind of high-end, enterprise-oriented support that many Fortune 500 LAN systems managers are increasingly demanding from their primary client/server system suppliers, said David Passmore, president of Decisis, a Herndon, Va., consultancy.

Who gets in?

But there is a catch: Customers that spend the required amount on Novell products each year do not automatically receive the Major Account designation that entitles them to the program's more high-level services. Indeed, Novell is offering its Major Account services only to companies that are deemed "strategic" by Novell account managers, according to Joseph Merengi, senior vice president of Novell's worldwide sales organization.

Even other major Novell customers may find themselves shut out. National Grocers Co. in Toronto, for example, has more than 1,200 NetWare nodes and was featured as a case study in Novell's Buyers Guide. But the grocery chain does not spend $250,000 on Novell products per year.

"They are not addressing a fundamental [user support] need," said Robin McCubbin, network planning analyst at the grocery chain. "The guy running a 40-station network should be given the opportunity to pay $20 grand and get the same level of support as someone buying all kinds of boxes of red" (Novell's color).

It particularly irked McCubbin that Novell is charging $20,000 or $50,000, depending on the level of service package chosen. At those rates, McCubbin maintained, Novell could afford to hire enough additional support people to provide the same services to medium-size accounts that are willing to pay the fee.

Novell spokesmen made no bones about the fact that the company created the program for its own benefit as well as that of key customers. Novell hopes to use the program to create an ongoing dialogue between its technical people and important customers. The customer gets advanced information about Novell's product directions; Novell gets feedback as to whether those directions are on target in terms of meeting big customers' needs.

This is exactly what major Novell customers such as Hoechst Celanese Corp. are looking for. "I would rather deal directly with a group in Novell that is plugged into product people," who could come in and explain the benefits of emerging Novell technologies that were of interest to the customer, said Lorie Mouklas, project leader at the chemical firm in Somerville, N.J. Hoechst Celanese, for example, is interested in Novell's emerging multimedia and telephony offerings.

In return, Mouklas said, he would give Novell good feedback about how the company could better please users such as himself — by being more ready to link NetWare to Microsoft Corp. systems, for example.

Drumming up business

Novell also intends to use CAP as a competitive weapon: Some qualified candidates might not have any Novell products at all but could be potential strategic customers, Marengi said. Indeed, some information systems managers in the process of choosing from among Novell, Microsoft and various Unix suppliers for their enterprise server platform said the vendor's enterprise support offering would be a major factor in their decision.

In addition, CAP will significantly extend the number of Novell customers who get high-end service, said Andy Huffman, vice president of Novell's newly formed Enterprise Solutions Division. Until now, only Novell's Top 100 customers received such services through Novell's Master License Agreement, he said. In contrast, CAP eventually will serve about 500 companies.

Stackable hubs stack up to competition

Vendors unveil more robust features, scalability

By Stephen P. Klett Jr.

■ Stackables have been known as the dunces of the hub family since their conception. However, their IQ is rising rapidly — and they are beginning to give their chassis-based brethren a run for their money.

Networking vendors have leapfrogged one another, bringing more robust and scalable stackable platforms to market while retaining their main claim to fame: low prices.

3Com Corp. became the latest company to join the fray, unveiling its much-vaunted SuperStack platform last week [CW, April 25]. SuperStack will allow users to mix and match Ethernet, Token Ring, SNA and Fiber Distributed Data Interface environments, with an upgrade path to 100M bit/sec. Ethernet and Asynchronous Transfer Mode (ATM) technology.

> "3Com is poised to do some serious damage in the stackable market."
>
> Valentin Scribar
> Program Director
> Global Network Strategies
> Meta Group, Inc.

During the past few months, Hewlett-Packard Co. and Lannet, Inc. have unveiled similar platforms, called AdvanceStack and LANstack, respectively.

The end result for users is that more functionality is being packed into a smaller package. This, in turn, provides a more flexible, cost-effective method of network concentration than chassis-based hubs for workgroup and remote-office connectivity.

"Stackables are definitely taking on the life of a chassis-based product by taking in a lot of the functionality that used to separate" the two types of hubs, said Charlie Robbins, an analyst at Aberdeen Group in Boston.

For example, the ability to mix and match topologies, integrate switching and routing functionality and provide scalability with management down to individual ports, are features traditionally reserved for chassis hubs from vendors such as Cabletron Systems, Inc., SynOptics Communications, Inc. and Chipcom Corp.

Entry-level pricing for the newer stackable platforms is roughly $75 per port, plus another $20 or so per port for management features. This price makes the hubs ideal for budget-challenged information systems managers who need a more affordable way to connect their workgroups than chassis hubs, for which entry prices range from $200 to $500 per port.

Flexible, scalable

However, users said scalability is as important as price in their buying decisions. Some customers also said they like the added flexibility of stackables, which can be spread throughout disparate workgroups and remote offices, daisy-chained in data centers or placed in wiring closets. In comparison, chassis hubs are generally relegated to wiring closet or backbone applications.

"We like stackables because they give us more flexibility in configuring networks and are definitely more affordable than chassis-based hubs, which are out of our reach financially right now," said Nancey Long, network manager for Montgomery County in Dayton, Ohio. The county likes stackables because they will allow it to start growing its network slowly, with minimum investment, while adding connectivity and features as needed. For example, the county may add 100M bit/sec. hub modules in a year or two to run an imaging application, Long said.

Increased capabilities

Stackables "will definitely catch on when more intelligence — such as better management and higher speeds — are added because people are realizing that there is no longer an Achilles' heel to using these things," Robbins said.

Initially, stackables' lack of these features made users reticent to depend on them for production applications, he said. While chassis hubs remain better-suited for some higher-end, mission-critical applications, the current crop of new stackables is capable of handling most users' needs, Robbins said.

However, not all users are sure that more intelligent stackable hubs are necessarily a good thing.

"Sometimes, all I want is a basic network connection — like dumb terminals and mainframes, for example," said a network administrator at an East Coast research laboratory that is beta-testing AdvanceStack. "While overall I like the HP product, the added intelligence also makes it more complex, which I'm not sure I like."

According to industry observers, HP's AdvanceStack raised the bar for stackables when it was unveiled in February. Analysts and users said they liked the platform's high port density — more than 700 ports in a single stack — as well as its ability to add routing as needed.

But HP may have to make room for 3Com at the top of the stackable heap because SuperStack offers users a higher level of redundancy and flexibility, analysts said. For example, 3Com offers a redundant power supply module for the SuperStack line that is for now unique.

"3Com is poised to do some serious damage in the stackable market," said Valentin Scribar, program director of global network strategies at Meta Group, Inc. in Reston, Va. "They appear to have covered all the bases."

However, according to a network administrator at an airline that plans to evaluate SuperStack, 3Com may have also had the most work to do.

"We were not happy at all with 3Com's first stackable; it really wasn't usable for us and it did not deliver everything they said it would. Hopefully this one will," said the administrator, who asked not to be identified.

SuperStack is available now with 12- and 24-port Ethernet and Token Ring repeater modules, as well as bridge and SNMP management modules.

High-speed networking

Switched data service deemed success in trial run

By Ellis Booker

Details of the first large customer experience with Switched Multimegabit Data Service (SMDS) were released recently by a user group devoted to the high-speed networking technology.

The SMDS Interest Group, Inc. in Foster City, Calif., issued a white paper on 3M Co.'s experience with SMDS. In this case, it was an alternative to an overburdened T1 network to link the company's data center with remote facilities.

"We have three nodes in operation and a fourth scheduled in mid-May," said 3M lead analyst Joe Bumblis.

Two of the locations use the Class 1 SMDS service, which offers 4M bit/sec. service. A third node at 3M's data center uses the 10M bit/sec. Class 2 SMDS service. US West provided all the circuits.

Bumblis said the 4M bit/sec. service has proved itself capable of supporting 10M bit/sec. Ethernet traffic from one site and imaging traffic from another.

"We've seen more peak traffic, in the 3M bit/sec. to 3.5M bit/sec. range, during the nightly data backups," Bumblis said.

3M's metropolitan corporate network, which is based primarily on the TCP/IP protocol, is composed of multiple T1s.

High speeds

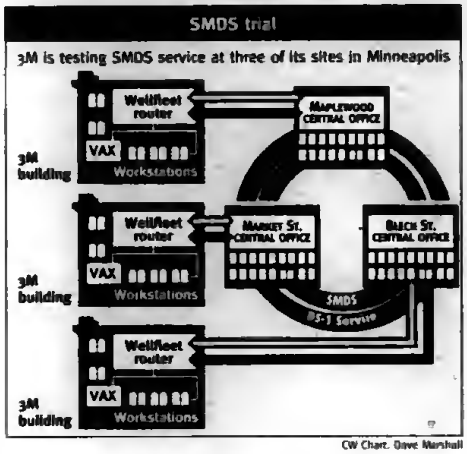
Switched Multimegabit Data Service is specified for a connectionless, cell-switched service at data rates ranging from 56K bit/sec. to 34M bit/sec.

Cost calculations

The 3M SMDS backbone is composed of Wellfleet Communications, Inc. routers, which totaled about $50,000, with a $16,000 data service unit (DSU) at each node.

For the 10M bit/sec. service, this approach is less expensive than one based on T1 lines, Bumblis said. "My calculations are that if you tried 10M bit/sec. LAN internetworking with T1s, you'd need seven T1s and 14 DSUs, plus a couple of routers," he said.

However, it would take only three T1s to accomplish a comparable 4M bit/sec. network, Bumblis said, and the cost comparison in this case "is about a draw."



CW Chart: Dave Marshall

Looking forward, 3M would like to see SMDS adopted by some of its business trading partners in the Minneapolis/St. Paul area.

But Bumblis realistically noted that until DS0 (64K bit/sec.) and DS1 (1.544M bit/sec.) SMDS is available, smaller companies will not find the service attractive. Indeed, 3M itself, which has 27 remote locations in the Twin Cities, would look at DS1-based SMDS to connect its smaller locations.

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Reporter's Notebook

The following are some of the highlights of the EDI '94 conference in Orlando, Fla. last week.

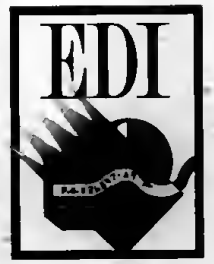
• Session speaker Peter Puccio, an EDI specialist at **Weyerhaeuser** in Tacoma, Wash., said electronic data interchange (EDI) systems often fail to meet anticipated return on investment because users do not connect them to their back-end data systems. That means EDI data still has to be keypunched once it arrives from a trading partner.

• **Bank America Corp.** is implementing a multimillion dollar Electronic Commerce System that integrates EDI, telecommunications, check printing and mailing services. It will provide disbursement and collection outsourcing services. Tandem Computers and National Data Corp. are providing the hardware and software, and MCI was the first customer to sign up.

• **Sterling Software, Inc.** released Gentran:Viewpoint for the AS/400, software that lets non-MIS users query and track EDI documents through a workflow process. It is meant to ease the EDI administrator's job by shifting status inquiries to end users.

• **St. Paul Software** in St. Paul, Minn., introduced an EDI control and reporting system for Unix. The product includes translation, mapping, EDI-to-fax processing and mailbox features. It lets a company accept EDI documents from a trading partner, splits the documents into parts and sends them to the appropriate divisions for processing.

• **Foresight Corp.** in Dublin, Ohio, launched software that helps companies generate implementation guidelines for their trading partners. The software already contains all the leading industry-standard transaction sets. It allows an EDI manager to choose the pieces of the specifications, and the software automatically generates the documentation. A license starts at $15,000.



• The **Data Interchange Standards Association, Inc.** and **Washington Publishing Co.** introduced AccessRamp electronic document software. AccessRamp uses Adobe Systems, Inc.'s Acrobat technology to let users navigate through EDI X12 standard transaction sets on a computer rather than search through books.

• **American Business Computer** in Ann Arbor, Mich., announced EDI software that guides users through EDI implementation. Expert systems and case-based reasoning help define the correlation between EDI data structure and the application's data structure without human intervention. — *Lynda Radosevich*

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Bill Jones, MIS, age 38

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EDI

CONTINUED FROM PAGE 63

with just three provided by ASAP.

Michael Tisdale, assistant vice president for materials management at Woman's Hospital in Baton Rouge, La., said he looks forward to more standardization and plans to adopt OnCall EDI.

Tisdale said he is especially excited about the prospect that suppliers can use the system to download price changes for thousands of products. Currently, changes in the pricing database are made manually — and inevitably some are missed — which leads to complicated billing disputes, he said.

Lower costs

According to EDI analyst Torrey Byles at BIS Strategic Decisions in Norwell, Mass., a 500-bed hospital spends $30 to $40 every time it places an order, and suppliers spend $24 to $28 to process the order. EDI could reduce the hospital's cost to $12 per order and the supplier's cost to 32 cents per order, Byles said.

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And since you'd [illegible] test lab, we use our [illegible] life, high-volume [illegible] partners to ensure [illegible] our commitment [illegible] boxed in, [illegible]

If [illegible] systems [illegible] at [illegible]

COMPAQ

Digital helps tighten Internet security

By Gary H. Anthes

Digital Equipment Corp. has introduced a package of software and services aimed at protecting corporate Internet users from network intruders.

Called SEAL, or Screening External Access Link, the package is a commercialized version of Digital's own internal system, in operation for 10 years.

SEAL consists of security consulting, custom development of Internet security policies and rules, installation and configuration of software, and training and post-installation telephone support. Prices start at $25,000, which includes a week of on-site consulting and two weeks of telephone support.

Sense of security

SEAL includes a programmable "firewall" that hides internal networks from the Internet. No direct connections from the Internet are possible, and data packets are accepted or rejected by customer-controlled "application relays."

Digital "is recognizing that security for corporations using the Internet is a major pain point right now," said Laura DeNardis, senior research analyst at Meta Group, Inc. in Westport, Conn. "But the dilemma is that there is a conflict between the amount of security you provide and the flexibility you give to users. It does limit functionality."

Still, DeNardis said, SEAL and a handful of similar products offer better security than the standard packet-filtering capabilities of routers.

SEAL forbids access to corporate systems unless the external user is authenticated at the firewall. Authentication is performed via handheld devices that generate an encrypted response to a challenge generated by the firewall.

Users set the policies. For example, a company might decide initially to permit only electronic-mail access to the Internet and later allow users to perform remote log-ins or file transfers.

SEAL also produces logs useful for identifying suspicious activity, the company said.

SEAL's standard Internet gateways include E-mail, file transfer, remote log-in, client/server information services, such as Gopher and World-Wide Web, and notes conferences. Optional components include customized gateways to Internet services such as Usenet news groups.

A Digital spokesman said SEAL is used by about 20 customers — mostly large firms — but he would not name them.

Briefs

Wellfleet sees growth

Wellfleet Communications, Inc. in Billerica, Mass., announced revenue growth of $103.8 million for its third fiscal quarter, which ended March 31. Net income for the quarter was $16.4 million, compared with $7.6 million for the same period last year. The company also announced a 2-for-1 stock split to take effect on May 13.

IBM offers ATM chip set

IBM has announced the availability of a 25M bit/sec. Asynchronous Transfer Mode transceiver chip set, which was designed to produce lower-cost ATM hardware. TranSwitch Corp. in Shelton, Conn., will market the chip set.

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CDPD service takes first step toward reality

Initial users are expected to test technology

By Michael Fitzgerald

The great wireless hope, Cellular Digital Packet Data (CDPD), recently took a solid step forward with the first announcement of commercial service.

Bell Atlantic Mobile, the cellular arm of Bell Atlantic Corp., has rolled out CDPD service, called AirBridge, in Pittsburgh and the Washington/Baltimore corridor [CW, May 2]. That move, observers said, signals that CDPD will finally be something customers can actually use.

"It's an important step for CDPD," said Andrew M. Seybold, editor in chief of "The Outlook on Mobile Computing," a newsletter in Brookdale, Calif. Seybold, who in the past has attacked CDPD vendors for hyping technologies they could not deliver, praised Bell Atlantic for putting technology in the marketplace.

Lee Nolan, senior telecommunications engineer at The Travelers Insurance Co. in Hartford, Conn., called AirBridge "an encouraging sign that CDPD is rolling out, and for real." But, "AirBridge doesn't mean anything because there's no coverage" in Connecticut yet, he added.

Nolan said Travelers was interested in wireless technology because it could let auto claims adjusters close the claims at the accident site, an option they do not have now. "We hope CDPD will provide them the means to do that," Nolan said.

Optimistic goals

Bell Atlantic officials promised that they and other players in the cellular market, such as McCaw Cellular Communications, Inc., would make CDPD commercially available in the nation's 61 largest markets by year's end.

In the meantime, though, CDPD is behind schedule, and vendors have a lot of broken promises to fix on delivery dates. Analysts said they doubt Bell Atlantic will initially attract much in the way of commercial use, especially since the service is commercially available in only two cities.

"They're offering CDPD in two cities, and Ardis and RAM [Mobile Data] have had a hard time gaining customers with nationwide service," said Ira Brodsky, president of Datacomm Research, Inc. in Wilmette, Ill. Brodsky said he thought initial users would largely be companies testing the technology.

Bell Atlantic did announce a customer, but it was the Groton, Conn., police department, which will not be able to use CDPD for three to four months, when Bell Atlantic brings in CDPD to the state.

Pilot projects

Though there are almost no CDPD sites up and running, tests and pilots are under way in a variety of cities, including Chicago, Houston, Los Angeles, San Francisco, Seattle and Las Vegas.

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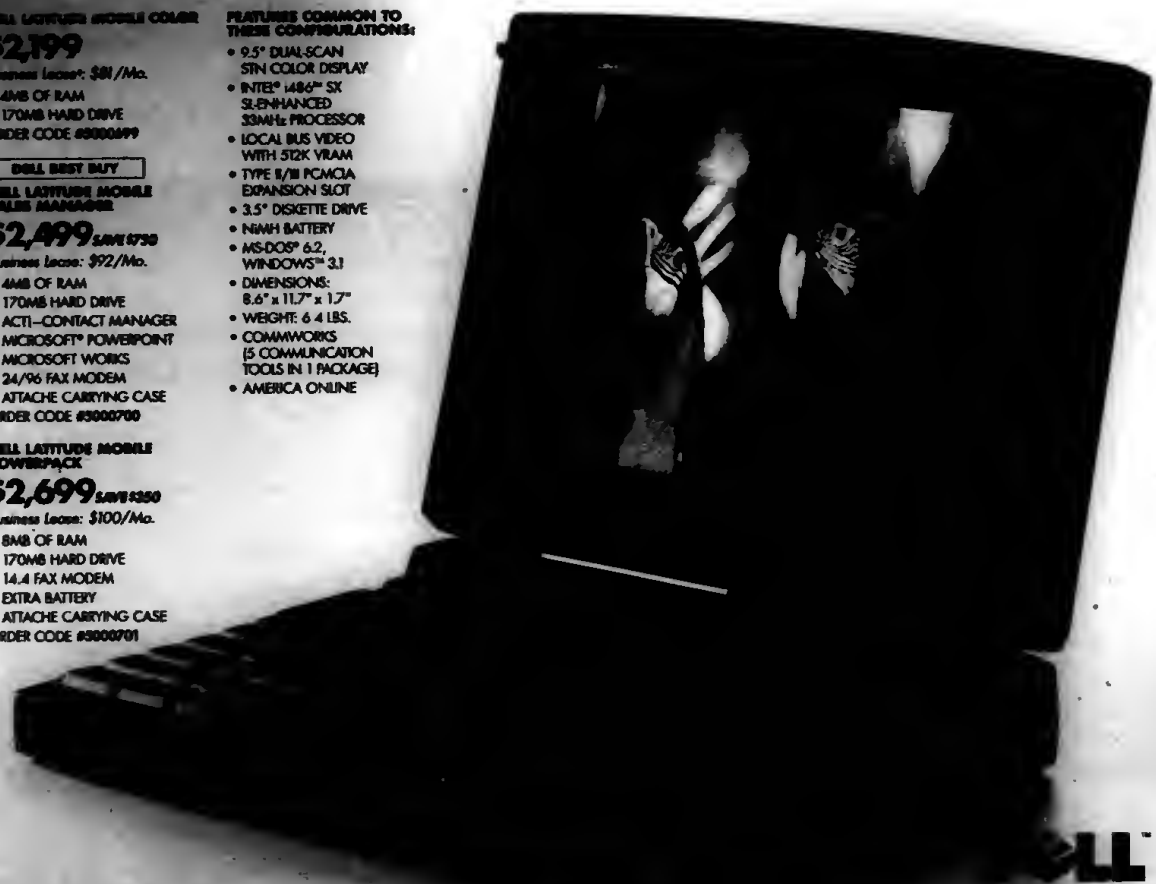

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IBM testing latest version of NetView

LAS VEGAS

By now, beta-test copies of Version 3.0 of IBM's NetView 6000 should be on their way to customers, in anticipation of a summertime general release of the Unix-based network management system, an IBM manager said.

Version 3.0 will add three key features to NetView 6000, according to Sanjiv Ahuja, IBM's director of enterprise management platforms at the Networking Software Division.

Ahuja, in an interview at Networld/Interop '94, said the new release will let users physically separate the managing system from its database, choose their own database management system and schedule alternate systems to take over as network managers in a backup situation.

He said separating the database from the management system allows users to place the management console in one site and the database in another site where there are more employees with database skills. This also allows the company to construct better disaster recovery plans.

> The latest release will let users physically separate the managing system from its database

Giving users the option to choose a database for network management operations lets the user company standardize on a DBMS that it may already use for other applications, as long as that DBMS uses standard SQL, Ahuda said.

While IBM has not announced pricing for the new version, which was to ship in beta last week, Ahuda said availability of the release for IBM's AIX and for Digital Equipment Corp.'s Polycenter management environment will be closely timed. Availability for Sun Microsystems, Inc.'s Solaris will follow shortly, he said.

—James Connolly

Network security tool debuts

By Stephen P. Klett Jr.

Tracking security validation in client/server environments is a formidable task that can lead to some serious headaches among network security managers. A new IBM product seeks to address this.

"Security wasn't bad on the mainframe because you only had one password to remember per data center — but those days are long gone," said Jim Yurek, assistant vice president of information security at Household Financial Network in Northbrook, Ill. "In a distributed network such as ours, with 15,000 users, network security is a nightmare."

To help network managers solve this problem, IBM's Networking Software division unveiled a new release of its network security application, NetSP, at the recent NetWorld/ Interop '94 show in Las Vegas.

NetSP Version 1 Release 2 centralizes security in a third-party server rather than spreading security validation across a network. It uses a variety of techniques, including encryption, to validate users' identities and their access to applications. The product works without requiring passwords or keys to be transmitted in clear text, which hackers can intercept.

Version 2 includes an interface for single sign-on to IBM LAN Server 2.0 or 3.0 and Novell, Inc. NetWare 3.12 or 4.01 servers. The interface also lets users perform most of the command-oriented steps of logging on to a system intuitively by pointing and clicking with a mouse. IBM also added support for Hewlett-Packard Co.'s HP/UX 9.0, Sun Microsystems, Inc.'s Solaris 1.1 and DOS/Windows operating systems.

One password, one log-on

What this means for users is they have to log on only once, even though they might be requesting information located on several different systems. For example, an OS/2 user can sign on once to NetSP with one password and get logged on to an IBM LAN Server or Novell NetWare Server, then click on a CICS system, then a time-sharing system.

For network managers, this means they no longer have to continually field calls from users saying, "I forgot X password to get into X application," Yurek said.

Yurek said he expects NetSP to provide significant savings in training because users no longer need to key in the commands to access an MVS application. "I look at it more as a productivity tool than a security tool," he said.

Household Financial has a network of roughly 15,000 users, who send about 1,000 requests for log-on assistance to the help desk each day.

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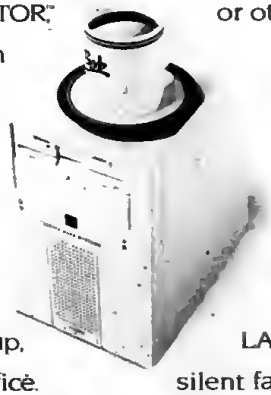

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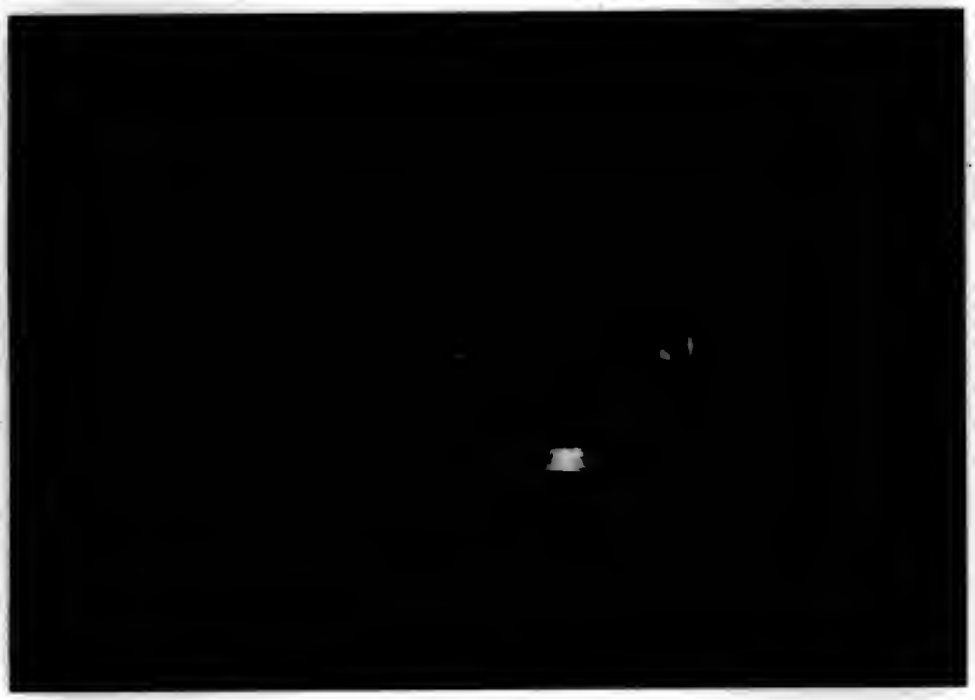

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Mining for customer data gems

By Thomas Hoffman
NASHVILLE

Despite James Gray's desire to improve his golf game when he moved here last year to take the information systems helm of Service Merchandise Co., he has spent most of his time improving the retailer's use of information technology.

"Being an MIS executive is not conducive to playing a lot of golf," said Gray, group vice president of MIS at the nation's largest catalog showroom retailer. He moved to this more sunny clime from Anchorage, Alaska, where he had been chief information officer at food wholesaler Carr-Gottstein Food Co.

Indeed, the IS department at the $3.81 billion general merchandiser has had its hands full during the past year with a bevy of IS projects designed to help Service Merchandise fine-tune its business strategy. These include a recently completed effort to migrate the company's mainframe-based marketing database to a customized Unix platform.

A change in database

Earlier this month, Service Merchandise switched from a Computer Associates International, Inc. CA-IDMS marketing database on an Amdahl Corp. machine to a specialized Unix-based marketing database from Harte-Hanks Data Technologies in Billerica, Mass.

In the past, Service Merchandise marketers had trouble extracting customer information from the mainframe database using SAS Institute, Inc.'s SAS System software. The marketing database was also expensive to run on the mainframe and consumed an inordinate amount of processor time, Gray said.

ON SITE

Service Merchandise Co.
Nashville

Challenge: To provide marketers with histories of customer purchases and information in a more accessible format.

Technology: Harte-Hanks' Unix-based relational database; Sun's SPARCcenter 2000; CA's CA-IDMS RDBMS; SAS Institute's SAS System data access software; Amdahl's mainframe; and CA's CA-Visual Express application development tool kit.

Results: Significantly improved data response times for marketing staff; reduced mainframe costs from off-loading marketing database to Unix.

So the company decided last year to implement the Harte-Hanks P/CIS database, which was specifically designed for marketing activities. The system performs a wide range of marketing-related functions, from cross-selling to historic trend analysis.

"A general-purpose database wasn't going to fit the bill for us," Gray said. "The Harte-Hanks system is geared exactly to what our marketing people need."

Service Merchandise has rolled the database out to 15 Intel Corp. 1486-based workstations connected by a Sun Microsystems, Inc. SPARCcenter 2000 Unix server.

Bob Islinger, operating vice president of marketing at Service Merchandise, said he believes the system, which is more user-friendly than its mainframe replacement, will be a boon to his organization.

"We're going to be able to ask a lot of 'what-if' questions within the database so that we can better understand our customers and our business," Islinger said.

Money not an issue

Gray said the switch from a mainframe-based marketing database to Unix was not a dollar issue, even though the cost to maintain the software on the mainframe was 10 times greater than on the Sun platform. "The real difference is that we can get answers to marketing problems right away," Gray said. He estimated that the cost of the new system is between $800,000 and $1 million, including database software, hardware and networking equipment.

The marketing system arrives at a critical juncture for Service Merchandise. Same-store sales — the key barometer of a retailer's financial performance — have slipped for the past four quarters. "Category killers" such as Toys R Us, Inc., Circuit City Stores, Inc. and The Sport Authority have been eating away at Service Merchandise's market share, according to

Customer data, *page 82*

Service Merchandise's James Gray: *'The real difference is that we can get answers to marketing problems right away'*

Survey reveals growth in data center work loads

By Mary Brandel

■ Data center work loads are still growing, but expenditures for technology and personnel are shrinking, according to Nolan, Norton & Co.'s annual data center baseline survey.

In the 200 sites surveyed, data centers used 5% more processing capacity than last year. In the meantime, online user populations remained steady, and average processor loads remained unchanged.

Overall expenditures decreased by 5.5%, which Nolan, Norton attributed mainly to lower technology costs, especially in processors and disk storage. Technology spending was down 6%, while personnel costs were down 3%.

Such efficiencies are critical, the consulting firm said, as many organizations are seeking peak efficiency of their current operations.

Software spending up

Spending was up, however, in the systems software area by 7%. In fact, systems software is now the second largest data center expenditure next to processors, said Thomas Hickey, director of the baseline data center services at Nolan, Norton.

Hickey said he expects systems software pricing to continue to rise, despite IBM's move to usage-based pricing. "As long as there's unique functionality differences [in software offerings], I don't see why [other software vendors] would need to follow suit," Hickey said.

This is a "sore point with customers," said Joseph Vincent, director of technical services at Humana, Inc. "This is an area where vendors kind of have you. You can't just deinstall software because you don't like the price."

On the hardware side, Hickey told attendees to take advantage of falling disk prices to get good storage deals. Total installed disk storage has risen in past years, and it was up 8% in this survey. At the same time, the percentage of that storage in use increased only 3%, indicating improved storage management practices, Hickey said.

Vincent said his organization saw a 14% to 15% increase in direct-access storage devices (DASD) in the last year due to new business. "We had to go through hoops to justify our last DASD expenditure," he said.

Peak performance

THE MOST EFFICIENT DATA CENTERS HAVE THE FOLLOWING:

- Most of their installed MIPS in use.
- Fewer processors or recently acquired processors with very attractive prices.
- Single operating systems (or at most two), enabling reduced system software spending and technical support requirements.
- More fully depreciated disks, which lowers overall disk storage unit costs.
- Higher use of disk resources through caching and SMS management.
- Automated tape library use restricted to high-volume, service-sensitive applications.
- A staff mix favoring "doers" over managers and administrators.

Source: Nolan, Norton & Co., Cambridge, Mass.

So far, redundant arrays of inexpensive disks (RAID) have had little impact in data centers, "but we've already started to see that change," Hickey said. With tape hardware more costly, he said, more data will be moved from tape to disk storage.

In terms of vendor presence, IBM's share of installed disk continued to erode in the data centers studied, from 69% to 65% this year, while Storage Technology Corp.'s rose from 2% to 6% this year. "People have brought in plug-compatible manufacturers as a negotiating tactic with IBM, and it's a tactic that works successfully," Hickey said.

Data centers surveyed ranged in size from less than 5 MIPS to more than 1,200 MIPS.

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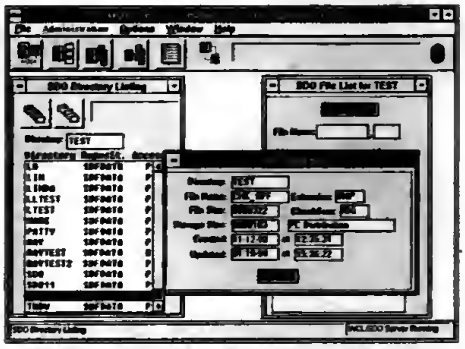
Multi Soft unveils software tool

Continuing to surf the client/server wave, Multi Soft, Inc. has introduced a utility that lets corporate information systems managers better distribute and maintain client/server and PC applications from a central location.



Multi Soft's WCL/SDO *makes it possible to better maintain client/server and PC applications from a central location*

The WCL/Software Distribution Option (SDO) makes use of what Multi Soft says are mainframes' best attributes for central storage and the maintenance of master libraries. Similarly, SDO uses a PC's best attributes to deliver administrative functions to desktop users.

Multi Soft executives said the package makes it possible for client/server and PC applications to be managed with a significantly smaller amount of maintenance overhead and without the need for user or server lists to be created.

"If you are going to make changes to [client] applications or tables, IS right now can't possibly update 400 or 500 clients in any efficient way," said Charles Lombardo, Multi Soft's president. "What we do is allow you to transparently build support directly into the client application allowing you to maintain application integrity, which is very important to IS."

Ascribing to the tenets of Open Architecture, WCL/SDO's auditing and distribution functions can be completely integrated with any application capable of calling on a Dynamic Link Library, the company said.

The host component of WCL/SDO costs $25,000, with various corporate site licenses available. The average price of a client is $75. —*Ed Scannell*

Information Advantage, Inc. has announced the Information Advantage (IA) Report and IA Analysis, the first of four applications in the Information Advantage Decision Support Suite for data warehouses.

According to the Minneapolis company, IA Report offers a fast, flexible, consistent way to monitor and manage an enterprise at all levels.

The product provides accelerated report generation and requires minimal ongoing development support.

The IA Analysis application gives users complete access to enterprise operations and historical data, along with tight integration with desktop applications for statistical analysis, qualitative analysis, graphics and presentations.

The applications in the suite are available as an integrated set for $300,000.

▶ *Information Advantage*
(612) 938-7015

Help/Systems, Inc. has introduced an interface for Robot/Save 4.0, its automatic backup and recovery system to **Fathom Technologies'** Fathom Optical Storage Products.

According to Help/Systems in Minnetonka, Minn., the Fathom optical storage product provides multifunction operation, write-once, read-many and rewritable media access to AS/400 users.

The interface enables Robot/Save to manage the Fathom optical storage subsystem during backup operations, automating the system backup.

After the initial setup, the user can perform unattended backups, including SAVSYS and NONSYS operations.

Robot/Save prices range from $5,245 to $17,135.

▶ *Help/Systems*
(612) 933-0609

Silvon Software, Inc. has introduced Release 3.4 of its Implementer change management system.

According to the Westmont, Ill., company, Implementer manages the development and movement of programming changes among development, test and production libraries on the AS/400.

The product also offers promotion job scheduling, enabling programmers to schedule jobs while promoting their modifications.

Standard program license fees range from $5,000 to $24,000.

▶ *Silvon Software*
(708) 655-3313

Product short

Standardware, Inc. has introduced Cope IMS/DC and Cope CICS/DBCTL, products designed to reduce IMS/DC control regions and eliminate CICS local DL/1 while providing as many CICS, IMS/DC and DBCTL test environments as necessary. Cope consolidates multiple CICS local DL/1 environments without changing a line of application code. Cost: Starts at $80,000. Standardware, Pelham Manor, N.Y. (914) 738-6382.

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SSA needs to improve business planning

Report said the agency has failed to address major service improvements

By Gary H. Anthes
WASHINGTON

The Social Security Administration's (SSA) five-year, $1.1 billion migration from mainframe to client/server computing is technically sound. Yet the agency is unlikely to realize significant benefits because it has not addressed the business process re-engineering needed to improve service.

That is the bottom line in "The Social Security Administration's Decentralized Computer Strategy," recently released by the Office of Technology Assessment (OTA) of the U.S. Congress.

"SSA has prioritized [systems] installation according to current SSA operational and service delivery needs — essentially automating marginal improvements in the status quo," the OTA said. The report said SSA had failed to produce a "service delivery plan" that would identify ways to improve service to the public through better business practices.

Making an effort

However, the OTA said the SSA appeared to be making a "good-faith effort" to thoroughly restructure its service delivery.

"It's sort of like the Chivas Regal ad, whether the bottle is half-full or half-empty," said Renny DiPentima, deputy commissioner for systems at the SSA. "We think we have a pretty good planning system, but the OTA has pointed out some things that do need to be enhanced and improved."

Outlining three options, the OTA said Congress could delay the project, called "intelligent workstation and local-area network" (IWS/LAN), or approve funding for it as is. However, it recommended beefing up funding for re-engineering and service delivery planning and that the SSA become more involved in governmentwide electronic delivery pilots and projects.

The OTA suggested the SSA employ pilot tests in the following areas:

- Integrated electronic records, in which SSA recipients would have a single "electronic folder" instead of separate electronic and paper files.
- Multiprogram electronic benefits delivery, in which a single card could be used to obtain payment for food stamps, Medicaid and Social Security benefits, for example.
- Automated disability determination, to streamline determination of initial and ongoing medical qualifications for disability insurance payments.
- Electronic bulletin boards and networks to deliver information about the SSA to the public.

"Just approving the money and keeping your fingers crossed is not likely to maximize [the SSA's] return on investment," said Fred B. Wood, the OTA's project director for the SSA report.

Time to decentralize?

The SSA has centralized mainframe systems at its National Computer Center in Baltimore, with 39,000 dumb terminals at 1,300 field offices and 37 "teleservice" centers attached via SSANet. Most applications are written in Cobol and CICS.

IWS/LAN is intended to move the SSA to a more decentralized computing model, with 95,000 Intel Corp. 1486-based PCs deployed on Token Ring LANs. This should give field personnel much more computational autonomy. As applications are rewritten, the mainframes will evolve into data servers, the SSA said.

Although the OTA found the proposed architecture generally sound, Wood questioned the feasibility of managing such a large base of distributed computing from a single facility in Baltimore.

"I don't take what Fred [Wood] says lightly; it is a very big challenge to maintain such a large network and monitor it centrally," DiPentima said. "On the other hand, if I was to attempt to monitor it locally, I'd need 2,000 LAN managers."

DiPentima said the SSA's existing centrally managed network processes 20 million transactions a day with 99.9% uptime.

Customer data

CONTINUED FROM PAGE 79

H. B. Thomson III, a senior vice president and retail analyst at Wheat First Butcher Singer, a Richmond, Va., investment bank.

Still, most analysts were optimistic about the organizational changes at Service Merchandise, which operates 395 outlets nationwide and is planning to add more than 20 locations this year. The retailer is exploring a variety of ways to enhance the "customer experience." These include ways to inform patrons at an earlier stage in the selling cycle if an item is not in stock, according to Christopher M. Weis, an analyst at Equitable Securities Corp. in Nashville. To track its inventory, Service Merchandise runs a Motorola, Inc. 68000 Unix-based machine in each store. They are linked to one another and the company's data center over a wide-area satellite network.

Put to the test

Gray said Service Merchandise will likely use the marketing project as a test bed for a planned overhaul of its merchandising systems. For that project, Gray said, the retailer plans to use an information warehouse approach for its merchandising systems. Data will be formatted into a relational database to make it easier for staffers to extract information using data-access tools such as CA's CA-Visual Express.

Because the company has 20-plus years of mainframe application development invested in its merchandising systems, Gray said a soup-to-nuts re-engineering initiative is not in the company's best interest.

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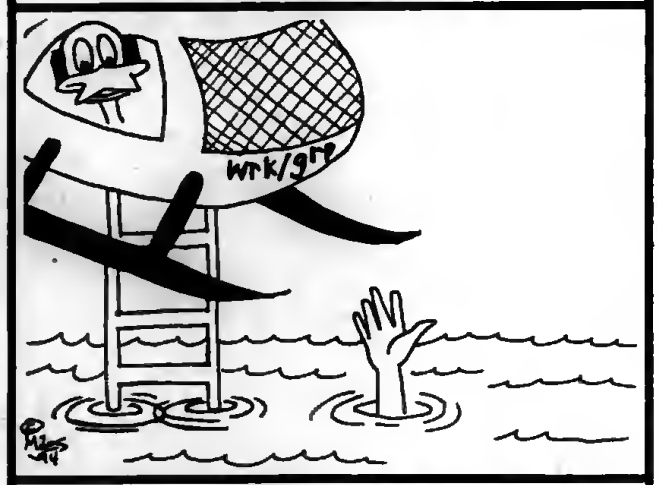

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Software Engineering of America has introduced Release 4.0 of Operator Dynamic Dialog Subsystem (ODDS/MVS) for MVS-based unattended automated operations.

According to the Franklin Square, N.Y., company, the product offers an AutoRule Facility that allows a data center to generate NetView alerts, create and update information management problem records and monitor the availability of critical systems and subsystems.

Release 4.0 also employs MVS/ESA architectural features such as the Virtual Lookaside Facility to exploit data space use.

ODDS/MVS is priced from $14,700 to $31,835.

▶ *Software Engineering of America (516) 328-7000*

California Software Products, Inc. has announced Release 1.5 of Baby/4xx, its RPG software system.

According to the Santa Ana, Calif., company, Release 1.5 offers increased IBM AS/400 compliancy, better performance and Microsoft Corp.'s Windows NT compatibility.

Features include multiple prefix message files support, second-level message support, automatic update of an optional migration support utility, extended file resources and larger program support.

Baby/4xx costs $3,500.

▶ *California Software Products (714) 973-0440*

4th Dimension Software Ltd. (4D) and **Hewlett-Packard Co.** have announced the availability of the Enterprise Control Architecture, 4D's distributed systems management architecture, on the HP/UX operating system.

According to 4D in Irvine, Calif., the Enterprise Control Architecture offers a platform-independent enabling technology that provides a single graphical user interface from a central point of control, a distributed shared operations repository and full interoperability across heterogeneous environments.

The first product available is Control-M for HP/UX, designed for scheduling and production control capabilities on HP's Unix-based platforms.

Pricing for Control-M for HP/UX starts at $750.

▶ *4th Dimension Software (714) 757-4300*

Briefs

Computerm buys gateways

Computerm Corp., looking to expand beyond its niche in the mainframe channel extension market, acquired **McData Corp.**'s LinkMaster 6100 and 6200 gateway products for connecting LANs and IBM SNA networks over a common backbone. Computerm said it plans to add support for IBM's Data Link Switching specification this fall, along with an SNA/IP software gateway for routing SNA data across Novell, Inc. NetWare LANs.

Firm makes client/server deal

Systems & Computer Technology Corp., a Malvern, Pa.-based systems integrator, has signed a letter of intent to purchase **Synercom Technology, Inc.**'s Work Management Information System (WMIS) division for $2.25 million in cash. WMIS, a client/server package, was designed to automate the control and reporting of construction, maintenance, field service and repair for utilities.

CA shipping IBM AIX version

Computer Associates International, Inc. is shipping IBM RS/6000 for AIX versions of its CA-Unicenter distributed systems management package. CA also introduced a release of CA-Warehouse Boss, a warehouse automation solution for IBM AS/400 midrange environments; its features are said to improve customer service by linking supply-chain planning with warehouse management.

Unisys wins $20M contract

Unisys Corp. won a $20 million banking contract — including consulting information services and A series mainframes — with **Banco America Do Sul**, a $1.3 billion bank in San Paolo, Brazil

Patent suit settled

Ross Systems, Inc. and **Marcam Corp.** have settled their patent infringement lawsuit filed in 1993 that claimed Ross wrongfully infringed on a patent that Marcam held relating to its manfacturing software. While full terms were not disclosed, Ross will license the Marcam patent and has agreed to drop counterclaims against Marcam.

LAN backup product in offing

Boole & Babbage's storage automation division, **Empact Software**, said it will distribute a LAN-to-mainframe backup product from **Emprise Technologies** called Stage3. The product uses popular LAN backup software but redirects the output to MVS hosts at a rate up to three times faster than alternative solutions, according to Empact.

DOE awards contract

DynCorp, a professional and technical services company in Reston, Va., won a five-year, $227 million outsourcing contract from the **U.S. Department of Energy**'s office of Human Resources and Administration. DynCorp will provide computer and telecommunications services to the agency's headquarters in Washington and at major offices in Maryland, Georgia and California. Computer Data Systems, Inc. in Rockville, Md., held the contract before.

Firm buys disaster business

SunGard Recovery Services, Inc. acquired the AS/400-oriented disaster recovery business of Storage Technology Corp.'s **XL/Datacomp, Inc.** subsidiary for an undisclosed price. The purchase included all of XL/Datacomp's subscriber contracts for disaster recovery on the IBM AS/400 plus other unidentified assets. The sale is not expected to have a material impact on either company's financial condition or operating results during 1994, the companies said. XL/Datacomp now plans to focus solely on the midrange storage market.

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Through cooperation come standards

By Melinda-Carol Ballou

■ Corporate developers seeking some order in the object standards wars are beginning to have options as vendors bring out ways of allowing different object models to communicate.

This is critical to large customers who need to reconcile Microsoft Corp.'s Object Linking and Embedding (OLE) specification with the Object Management Group's (OMG) Common Object Request Broker Architecture (CORBA). Although Microsoft — and OLE — dominate the desktop, virtually every other major systems vendor has pledged support for CORBA. Users want to develop applications that can work with both object models.

Working together

"We would like to see better integration between OLE and other object standards," said Jacques Leisy, software architect at Multex Systems, Inc., a Jersey City, N.J., developer of applications for Wall Street investment firms. Leisy said his organization has to support OLE on the front end for the desktop, but on the back end, it has a mix of Unix and other systems.

"Being trapped in a Microsoft world is something we don't want," Leisy said. "I want object brokers to allow us to issue requests regardless of where the object is located" and which object model it supports.

> "Being trapped in a Microsoft world is something we don't want."
> — Jacques Leisy, Multex Systems

John Rymer, an analyst at Patricia Seybold Group, a Boston consulting firm, agreed. "Customers are saying to Microsoft, 'You can't do the enterprise with OLE [alone]. Get on the stick because all the enterprise vendors are going with CORBA.'"

Vendors are beginning to respond. Among the initiatives are the following:

■ Although they are two months behind schedule, Microsoft and Digital Equipment Corp. will later this month offer an initial cut on their Common Object Model (COM) specification for industry review. COM will integrate OLE and CORBA objects that are remote or local across a number of platforms, officials from both companies said.

■ IBM is already shipping a version of its SOMobjects tool kit, which allows developers to create applications that support OLE applications and IBM's System Object Model (SOM) and Distributed SOM (DSOM), which are IBM's CORBA implementations.

• Component Integration Laboratories is making sure that its OpenDoc specification provides interoperability between OLE and SOM through mappings to OLE that are being developed by WordPerfect Corp.

■ Tools vendors ranging from Expersoft Corp. to AT&T Global Information Solutions also support both object standards.

• Industry sources said Candle Corp. is working with Microsoft to create specifications for OLE and CORBA and that an announcement about that work will be forthcoming this summer.

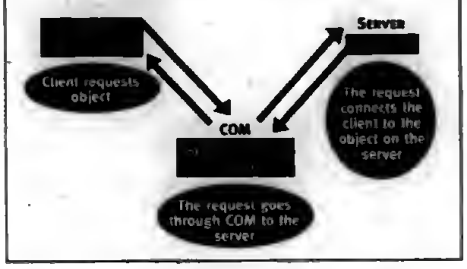
Crossing platforms

The Digital and Microsoft COM specification incorporates the OLE object model — along with Digital's Object Broker implementation of CORBA — across a range of platforms, according to David Seres, senior product manager for OLE at Microsoft.

At its most basic, COM provides an object fetching service between clients and servers (see chart). COM will also offer higher-level services such as data transfer, communication between objects, the ability for objects to retain their structure across a network and storage services, he said.

Object lesson

HOW THE COMMON OBJECT MODEL WORKS



The two companies are adding support for objects to Microsoft's Interface Definition Language for Microsoft's own version of the Open Software Foundation's (OSF) Distributed Computing Environment (DCE), he added.

At the moment, COM supports only OLE and Digital's Object Broker CORBA implementation. But COM does not yet support other vendors' CORBA products. This could change once Digital supports CORBA 2, the OMG's interoperability specification for CORBA, in Object Broker. CORBA 2 is expected to ship by year's end.

Coin of the realm

Specification work for the OMG's CORBA 2 interoperability specification is pushing forward, according to internal sources involved with the negotiations. It seems likely that the companies will offer support for a range of object transport mechanisms such as the OSF's DCE, TCP/IP and SunSoft, Inc.'s Open Network Computing. A number of companies involved have pushed for DCE support as a kind of object lingua franca, while others want the flexibility of support for a range of transport mechanisms.

Put to the test

Bankers Trust Co. in New York is testing COM's Service Control Manager for calling remote objects that support OLE or CORBA, according to Alex Kalpaxis, a vice president at the bank who is pleased with the early results.

Service Control Manager "will allow you to map your client requests for objects to a particular back-end server and will participate with COM in marshaling [objects] between heterogeneous systems," Kalpaxis said. "I'm figuring that anywhere in the mid-1995 time frame you'll see this technology in good use. But people should be checking it out now."

But Digital is not as dominant an enterprise vendor as some firms are, including IBM, so direct support from other companies will be key, according to Rymer. He and other analysts also questioned the COM specification from Digital and Microsoft, although they have not seen it yet. "The big question is, How much commonality will they offer between Microsoft's object model and Digital's CORBA-based model?" Rymer asked.

ASK's Ingres becomes open, can retrieve data from rival relational databases

By Kim S. Nash

Despite financial setbacks and recent layoffs, The ASK Group, Inc. made good last week on promises to open its Ingres database and development tools to support competing databases such as those from Oracle Corp. and Sybase, Inc.

The firm is shipping OpenIngres, a version of the Ingres relational database that can fetch and use information stored in Oracle, Sybase SQL Server, Microsoft Corp.'s SQL Server and other rival databases. Furthermore, OpenRoad, a set of development tools also designed to work with non-Ingres databases, is poised to ship late this month, the company said.

The goal is to let users incorporate non-Ingres products into client/server setups. But the OpenIngres database also includes new features such as support for binary large objects and X/Open Co.'s XA standard interface. The OpenRoad tool set, meanwhile, includes an upgraded, object-oriented fourth-generation language (4GL) and a new business and data modeling product dubbed Architect. ASK aims to sell the tools to Ingres and non-Ingres users, said Matt DiMaria, director of Ingres' tools marketing.

Beat to the punch

Indeed, ASK is now shipping object-oriented development tools designed to create applications for Sybase and Oracle databases, even before those vendors have delivered such utilities for their own databases. "We want customers to evaluate our products on their merits, regardless of the database they use," DiMaria said.

OpenIngres and related modules for security, networking and other tasks are available for such platforms as Digital Equipment Corp.'s VAX/VMS and Alpha/Open VMS, Hewlett-Packard Co.'s HP/UX, Sun Microsystems, Inc.'s SunOS and Solaris and IBM's AIX. Versions for other operating systems are slated to ship in July.

While OpenRoad products are due out within weeks for Microsoft's Windows and Windows NT, comparable Unix offerings have not been announced. DiMaria declined to elaborate on the Unix products he said are in the works.

Pricing for Windows editions of OpenRoad modules is as follows: Windows/4GL starts at $1,995, Architect starts at $3,695, and drivers for various databases are priced at $250 each.

Massive text searches made easier

By Melinda-Carol Ballou

For corporate developers seeking to index and query masses of documents, Fulcrum Technologies, Inc. earlier this month released Version 2.0 of Fulcrum SearchServer.

SearchServer is a client/server text search engine that now supports Microsoft Corp.'s Open Database Connectivity (ODBC) database access technology.

Ottawa-based Fulcrum also released SearchBuilder for Microsoft's Visual Basic tools, which will allow developers to create applications with Visual Basic that incorporate the text-retrieval capabilities of Fulcrum's products.

Paper problems

Early users of the products are building applications to more effectively access their corporate paper backlog.

Jim Falk, senior systems analyst at Davis, Polk & Wardell, a New York law firm, is using the Fulcrum tool kit to index more than 1 million client files.

"We have client files going back to the mid-1980s, and up until now we could only retrieve the file if we remembered who the client was," Falk said. "But over the years, people would change the file, use it for another client, and as associates came and went, it became more and more difficult to locate what we needed."

Falk's group created a program that acts as a front end for the lawyers, who can input search terms, catalog criteria and client names to do a Boolean search and obtain a list of documents that contain the appropriate information.

Searches incorporate a "similarity" feature that returns a relevance rating for similar documents, showing which ones contain the greatest number of overlapping keywords.

"In the short time we've been using this, we've been able to establish a precedence for new cases, [a process that] was difficult to do previously, saving a lot of time, money and manpower for the firm," Falk said.

Fulcrum officials said that in addition to ODBC support, Fulcrum's SearchServer Version 2.0 includes the following new features:

- An "immediate indexing" capability that ensures that documents are indexed as soon as they are added to the database and immediately reindexed if they are modified.
- A "text reader" architecture that allows SearchServer to be used to search and retrieve text objects stored within a relational database.

Fulcrum SearchServer Version 2.0 is shipping on major Unix, OS/2 and Windows platforms. Pricing starts at $695 per user with a minimum of 100 copies. Fulcrum SearchBuilder for Visual Basic is priced at $995 without runtime fees.

Briefs

Apple beta tests OpenDoc

Apple Computer, Inc. announced earlier this month that it is sending 1,000 Macintosh developers pre-beta copies of its OpenDoc software. OpenDoc allows developers to build and then share software components across applications and platforms.

The software is a key portion of the OpenDoc initiative under way at Component Integration Laboratories. The beta copies are expected to be sent to 20,000 developers later this summer, company officials said.

KnowledgeWare sign-up

More than 20 vendors have signed on to a certification program for compatability with KnowledgeWare, Inc.'s ObjectView client/server development tools, company officials said earlier this month. Those vendors include IBM, Microsoft Corp. and Novell, Inc. for networking, and database vendors Oracle Corp., Cincom Systems, Inc. and Gupta Corp.

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Jyacc, Inc. has introduced Jam Version 6, a development tool set.

According to the New York company, Jam 6 offers a fully graphical environment, high-performance transaction management and repository-driven and object-based development.

Jam 6 performs complex applications without coding and has a graphical editor featuring full drag-and-drop functionality. The package provides an application editor, Visual Object Repository, Transaction Manager, graphical presentation interface, Jyacc's proprietary prototyping database management system JDB, a database driver for one third-party database and on-line documentation and utilities.

Pricing for Jam 6 starts at $2,000.

▶ *Jyacc*
(212) 267-7722

Interactive Development Environments has introduced Pictures/Structured Environment (Stp/SE) Version 5.0, software analysis and design tools for development teams using structured programming techniques.

According to the San Francisco company, Stp/SE provides a comprehensive system for building large-scale software systems.

Features include a shared repository that stores all analysis and design information in one central location, a consistent and intuitive user interface that enables developers to learn and use the software more quickly and a "collapse and explode" feature that allows users to move portions of data-flow diagrams and navigate among editors.

Pricing for Stp/SE starts at $10,000.

▶ *Interactive Development Environments*
(415) 543-0900

Software-Centric has announced Strike for Windows, a collection of Dynamic Link Libraries (DLL) that provide concurrent access to various database management systems. Using SQL from any Windows front-end tool with support for calling external DLLs, users can access Microsoft Corp.'s/Sybase, Inc.'s SQL Server and Oracle Corp.'s and Gupta Corp.'s SQLBase.

According to the Sacramento, Calif., company, the product's application programming interface consists of two groups of function calls. The core set comprises more than 30 functions providing multivendor DBMS interoperability without code modification; a second group includes Strike Services Application Programming interface for access to the advanced features of each DBMS.

Strike for Windows costs $495.

▶ *Software-Centric*
(916) 454-9031

MetaWare, Inc. has unveiled MetaWare High C/C++ for OS/2 2.1, a compiler.

The product includes Direct To SOM support for IBM's System Object Model (SOM) and cross-platform Distributed SOM (DSOM).

According to the Santa Cruz, Calif., company, Direct To SOM lets users create SOM binaries by compiling standard C++ source code. MetaWare High C/C++ for OS/2 2.1 provides SOM and DSOM kernel code licensed from IBM.

A developer can move existing C++ code to SOM by recompiling. All of the supporting components are included.

MetaWare High C/C++ for OS/2 2.1 is available for $595.

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is there life after outsourcing?

The answer is yes but it's not life as we know it

GENERAL DYNAMICS' KRISTINE BUITENHEK: *Since the outsourcing, 'there are fewer gray areas as to who does what'*

ALAN LEVENSON

inside

OPINION: How CFOs and CIOs view outsourcing experiences

See page 96

"We were kept in the dark. There was a lot of rumor and suspicion. Nobody knew what was going on. The whole outsourcing was incredibly badly managed. Morale was real bad from beginning to end."

"Chuck," who wishes to remain anonymous, is still bitter about the way his company, a large oil and natural gas firm, handled the outsourcing of the entire information systems department five years ago.

Then there's the tale, uncovered in a recent two-year study by Ernst & Young, of a kinder, gentler outsourcing: A burned-out technologist didn't want to go with the outsourcer, so with some research help and training assistance from his company, he made a career shift and is now "a very happy beekeeper."

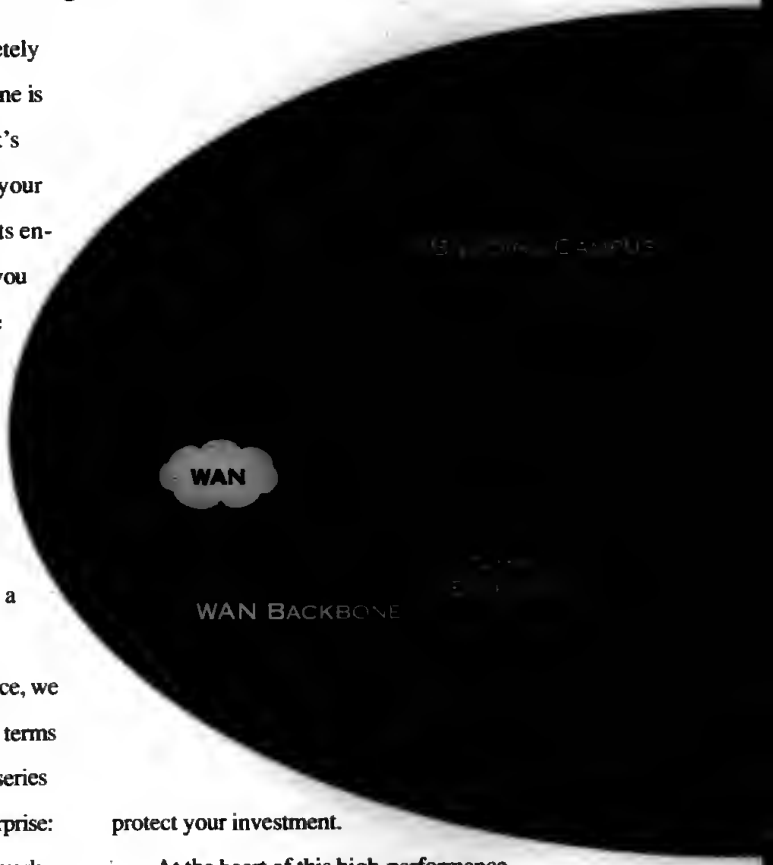
Grim or playful, most outsourcing

BY KATHLEEN MELYMUKA

Outsourcing, *page 92*

The whole is always great
Incidentally, in networki

■ As confusing as it sounds, there truly are two completely opposing ways to look at high-performance networking. One is the big picture, the sum total of your network. Because it's only by viewing your network in its entirety that you can be sure it's carrying your organization toward the future without compromising the investments you're making today. Conversely, you can't afford to overlook the smallest detail either. After all, unless it responds and even anticipates the needs of the individuals using it, a network has failed to live up to its potential.



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Expanding the network then becomes as easy as segmenting the backbone, which means you can solve a bandwidth problem in stages and grow the performance incrementally. Stackable and chassis hubs serve to expand and increase the level of segmentation delivered to users. Traffic is still routed

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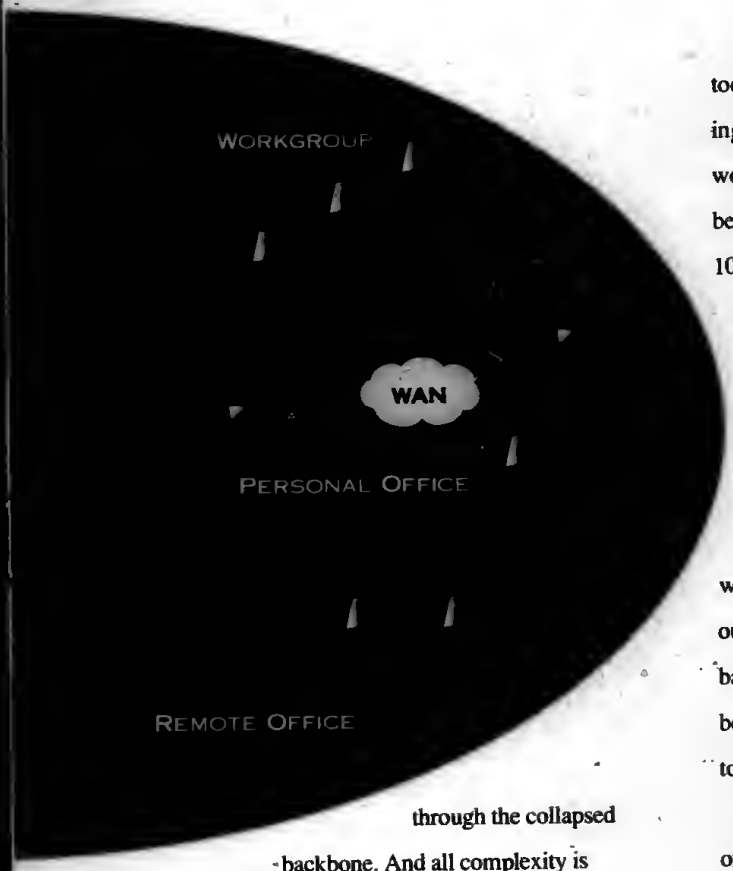
er than the sum of its parts.
ng the reverse is also true.



through the collapsed backbone. And all complexity is centralized, where administrative costs are substantially lower.

As your company's growth continues, and more bandwidth is called for, servers with existing Ethernet interfaces can be connected directly to switching hubs. Mission-critical resources, such as servers, can be attached to FDDI concentrators for greater throughput.

Again, complexity is reduced while at the same time performance actually increases.

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Outsourcing

CONTINUED FROM PAGE 89

stories focus on the process and the turmoil. But when the dust clears from a massive outsourcing effort, what's left of the corporate IS landscape? Who stays behind and how do their lives change?

Life after outsourcing can be hell for the technical staff in its wake. But for others, with the skills and attributes post-outsourced companies need — a strong understanding of their company's business and contract management, planning and consulting skills — life does go on after Armageddon.

case study

Outsourced and angry

For Chuck, the outsourcing experience was clearly a one-way ticket to hell.

"When the outsourcing was finally announced, it was, 'Here's the deal: We're selling the entire computer entity to ABC. You have a job with ABC. If you don't take it, you're on the street; no severance.' Ninety to ninety-five percent took it," Chuck says.

Chuck took it, too, in his continued job as the data processing change control coordinator. Chuck would make sure that his former company was aware of any changes that IS — now the outsourcer — planned that would affect customers, so it could sign off on them.

But Chuck soon found that the lack of candor and communication that characterized the initial stages of the outsourcing continued in its aftermath.

"At ABC they told us they offered equivalent pay and benefits, 'so don't worry about the packages you're leaving,'" he recalls. "It never turned out to be that way.

"They tended to treat us like we were morons. They had a very superior attitude: 'We don't do it that way so your way can't be right,'" he says.

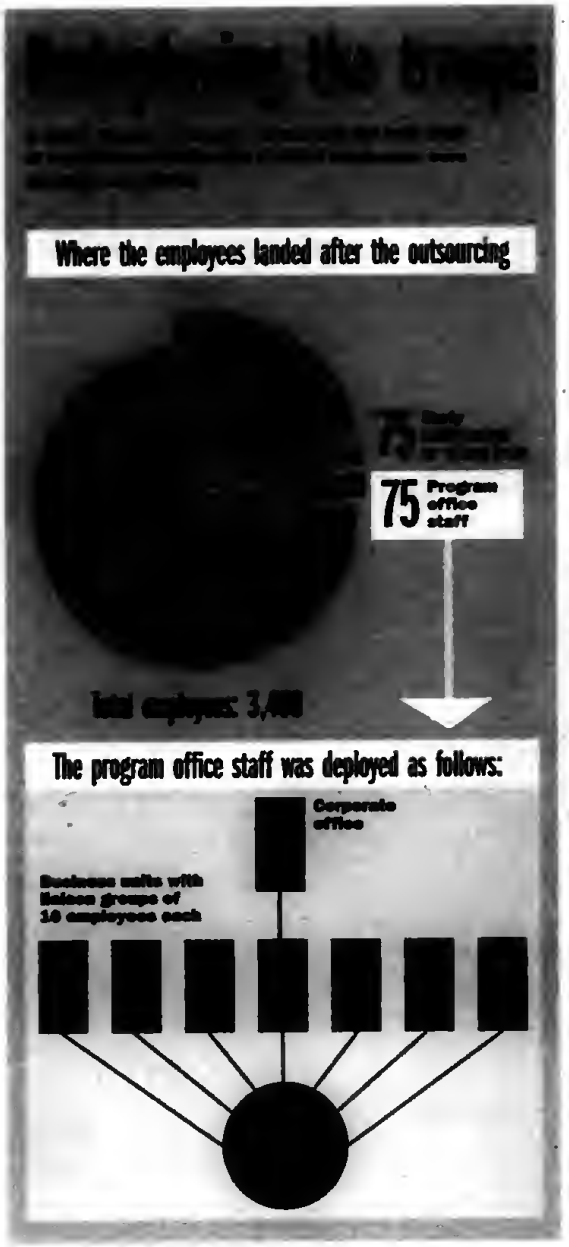
> "Outsourcing contracts may be among the largest contracts the corporation handles. You don't want them administered by some MIS guy that's never seen a contract before."
>
> **Carl Garrison, a senior consultant at Arthur D. Little in Cambridge, Mass.**

For Chuck, the outsourcing was the beginning of an extended nightmare. "I stayed on [at ABC] for 18 months," he says. "In retrospect it was very foolish."

The outsourcer's treatment chipped away at his self-esteem. "I kept saying, 'I must not be doing this right,'" he recalls. "Eventually, I said, 'It doesn't matter who's right or wrong, this just isn't working out.' By then I had lost all confidence in my abilities."

The ABC experience so daunted Chuck that when he was offered a position at another company, he doubted his ability to perform. Three years later he's back on track, but there's no mistaking his bitterness for the company that betrayed him and the outsourcer that virtually enslaved him.

"They just believe you're the enemy," he says.



case study

Planners thrive at General Dynamics

At General Dynamics Corp., the aftermath of a $3 billion contract with Computer Sciences Corp. (CSC) in El Segundo, Calif., in 1991 resembles a chief information officer's staff — minus the CIO.

Except for the 800 people who design embedded software for Cruise missiles and space launch vehicles, virtually all of General Dynamics' 3,400 IS staff members went to CSC. Gone are mainframe and midrange computer services, network, PC and workstation support, application maintenance and development, security and disaster recovery. All that remains is a 75-person planning and control staff that manages the outsourcing contract.

Kristine Buitenhek was a supervisor of information resource management operations at the San Diego office. She now oversees the business unit groups that remain.

After the outsourcing, there were liaison groups of about 10 people in each of seven General Dynamics business units and three people in the corporate office. The corporate functions were phased out. Otherwise Buitenhek's department was basically kept intact.

The liaison groups operate essentially as they did before, only with CSC rather than internal IS at one end.

In a typical business unit liaison group, two or three people perform budgeting, resource planning and prioritization for the business unit. Two or three others act as program managers to see that IS needs are identified and satisfied.

If there is a major IS project in development, one of those people may join the CSC develop-

The importance of being earnest

If communication is important in developing a contract, it's essential to maintaining morale. People who feel they and their colleagues were treated with respect and candor during the outsourcing will feel more secure in their new positions afterward.

Those forced out in an outsourcing aren't the only ones who may suffer. "Managers are the real victims," says a former IS manager who had to cut his work force from 300 to 30. "Those people were like family and friends to me. That was not fun. When it was over, I made up my mind to never be involved in that kind of thing again."

Subsequently, he switched to a different type of job.

By its nature, however, an outsourcing negotiation is uncertain, and until an agreement is signed, it may be impossible to answer employees' questions.

A certain amount of anxiety is unavoidable, says Mike Beebe, one of three former vice presidents at the Data Systems Division of General Dynamics who helped implement the company's outsourcing contract before joining his troops at CSC.

At General Dynamics, "for six or nine months leading up to the decision [to outsource] there were a lot of rumors: It was hot; it was dead; it was hot; dead," he says.

"About the best you can do in that period is communicate to the degree you can what's going on," Beebe says. "Recognize that there are rumors and very few people know how this is going to sort itself out."

Rules for dealing with employees:

1. Don't speculate on who will survive – have answers.
2. Admit to uncertainties.
3. Tell what you know as soon as you know it.
4. Be honest and avoid lawsuits down the road.

ment team for the duration. One or two people work on the architectural direction of the unit in terms of hardware and software standards for workstations and PCs. Two or three oversee the CSC contract for the group, setting service levels and making sure CSC is meeting them.

"Some of the people that were very technical did transfer to the outsourcer," Buitenbek says. "For example, we centralized all telephone and telecommunication services as part of the outsourced deal."

Business savvy was the key to remaining at General Dynamics after the outsourcing.

"The positions that stayed were user positions," she says. That is, they were people who were at least as important to business functions as they were to information services.

"The intent [of the outsourcing] was to focus pure [information technology] and separate that from people who had the business knowledge," Buitenhek explains. "Now we rely on CSC to help figure out how to put technology into solving problems. There are fewer gray areas as to who does what."

case study

BPX adopts a consulting model

There's another kind of IS life in the post-outsourced company: the IS internal consultant.

in anticipation of fierce competition in the oil and gas exploration industry, British Petroleum Exploration (BPX) wanted to strip away everything not considered essential to its business.

As part of that effort, a massive outsourcing changed the face of IS. Starting in 1989, BPX lowered IS spending from $540 million a year to about $145 million and cut IS staff, including consultants, from more than 2,000 to 150.

New and improved

What's left of IS at BPX "is nothing you would recognize as being IS," says Larry Gahagan, principal consultant, global information technology at BPX in Houston.

The new IS organization is built around a consulting paradigm. The operation is characterized by lack of hierarchy and an outward focus. All the traditional titles are gone. In their place is a series of in-house, vendor and senior consultants. BPX has also retained a handful of contract managers and a small number of technical staff, according to David Hall, a global consultant at BPX in Renfrewshire, Scotland.

The in-house consultants work with functional groups to help them understand their IS needs and challenge their assumptions. Other BPX consultants are "on loan" to vendors.

"We put people in the vendors' organization for months, even years, to help them understand our needs," he explains. Gahagan is one of about 30 senior consultants who travel the world troubleshooting.

"I may be project manager at one site, consultant at another. I may work with vendors at another or facilitate strategy sessions at another," he says. "I might be in Colombia with a bunch of drillers trying to reduce drilling costs. I wear many different hats. It's never dull.

"Previously, most of my focus was internal," Gahagan says. "When you open up, there's a world full of vendors; you look at where to invest your money."

Finally, a "CIO type" directs most of his efforts outside the company, working through various consortia to influence the global IS picture as it affects BPX.

"We want to try to shape the IS marketplace rather than just take what shows up on our doorstep," Gahagan says. "It's a very proactive stance."

The change from IS to an internal IS consulting firm was accomplished with the help of a UK consulting group called Oasis that designed the internal consulting practice and the training that went with it.

The retraining effort was massive. The in-house business consultants, for example, were typically people in the IS group who had business backgrounds. Although they had served as functional/IS liaisons before, there was a dramatic shift in their focus.

"They changed from a system delivery group to a consulting group, which would challenge the need to have the system to begin with," Gahagan explains. "They're expected to work from a global perspective. It took massive reskilling, but now most of these people could go out and get a job working with a consulting house."

Having tasted the freedom of its new IS design, BPX has no intention of turning back.

"We don't want to own anything," Gahagan says. "We don't want to have to manage it. We just want it to work." ■

Melymuka is a free-lance writer in Duxbury, Mass.

Out with the old skills, in with the new

After an outsourcing there's usually a shift toward contract management, quality assurance and negotiations skills.

"Once you outsource you'll be going through something like [request for proposals] negotiations monthly," says Carl Garrison, a senior consultant at Arthur D. Little in Cambridge, Mass. That's because an outsourcing contract covers the baseline business; all additional work costs additional money.

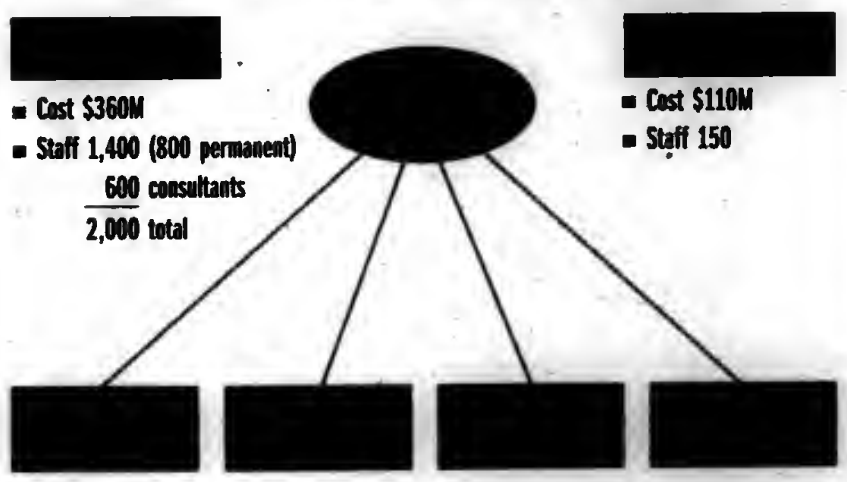
"There's always discussion about whether this thing [you need done] is in the baseline," Garrison says.

These skills may exist in the IS remnant, they may be taught, or they may be brought in from outside, but prudence usually dictates that at least the chief contract administrator be hired for that expertise.

"Outsourcing contracts may be among the largest contracts the corporation handles," Garrison says. "You don't want them administered by some MIS guy that's never seen a contract before."

Changing the face of IS at British Petroleum Exploration

Scale of change in BPX's IS unit



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CFOs, CIOs and outsourcing

Sasa M. Dekleva

Cost savings, liquidity problems and management's desire to focus on mainline business issues are commonly perceived as the main reasons for outsourcing information services.

And because part of the chief financial officer's mission is to seek ways to reduce costs, while chief information officers naturally wish to defend their departments and their jobs, one might expect CFOs to support outsourcing more than information systems executives.

Myths exploded

But these assumptions were challenged when I recently put them to the test in two separate surveys of CFOs and CIOs. (The first survey was of CFOs and included 365 usable responses. From those responses, the second survey targeted CIOs at the same companies and received 62 usable responses. The CIO survey was larger, with questions for the CFO survey taken as a subset from the CIO survey.)

In both cases, the surveys asked whether the organizations were outsourcing certain services.

One of the questions asked was how many organizations outsourced individual IS services. Surprisingly, despite all the publicity over the outsourcing of computer operations, this is one of the least outsourced services. Only 7.2% of responding CIOs and 10.9% of responding CFOs said they outsourced this service.

Other findings included the following:

- Of the responding 365 organizations, only 12 outsourced IS completely.
- Most CIOs and CFOs (approximately 65% each) said they have fully or partially outsourced one or more services in their department.
- The most common fully outsourced services included (by CIO/CFO response): disaster recovery (25%/18%), application development (18% each), user training (15%/13%), software maintenance (14%/20%) and hot line assistance (10% each).
- The most common partially outsourced services were (by CIO/CFO responses): software maintenance (39%/31%), user training (37%/47%), application development (35%/47%), microcomputer technical support (35%/31%) and disaster recovery (22%/35%).
- The other IS services seldom outsourced were data network operations and IS planning.

Surprisingly, cost reduction and cash infusion were not primary reasons for outsourcing

Another question asked was what originally motivated each organization to outsource.

Surprisingly, cost reduction and cash infusion were not primary reasons. Instead, CFOs rated access to expertise much higher than any other outsourcing goal. Is this an indication that CFOs mistrust their IS staff, worry about its limited expertise or find it insufficient?

Even more surprising was that CIOs concurred and rated access to expertise even higher than CFOs. This sounds like a clear signal that CIOs also feel that IS professionals are receiving too little education and training. These professionals said they feel unable to grow professionally at a rate commensurate with the speed of change found in their discipline.

The other dimension of this question was whether outsourcing vendors fulfilled clients' expectations. With few exceptions, both CFOs and CIOs said their outsourcing experience was pretty much what they expected.

Both CFOs and CIOs achieved significantly less access to expertise than what they expected. This benefit, however, was still clearly ranked No. 1 among the achieved benefits.

CFOs and CIOs were at odds in the evaluation of outsourcing risks, however, and surprisingly, their concerns seemed reversed to their roles. CFOs rated loss of control over information services as the highest risk. (More than two-thirds of the responding CFOs were responsible for the overall corporate IS function.)

CIOs worried about the business side of such a relationship. They rated the highest risk as vendors that would satisfy only the letter of contracts rather than establish a business partnership. Responses from both CIOs and CFOs also showed that the outsourcing experience was a positive one for each group, with the benefits received almost identical to what they expected. And because CIOs still report to CFOs so often — more than two-thirds of the responding CFOs said they were responsible for the overall corporate IS function — it's a good thing there is more common ground between them than one might imagine. ■

Dekleva is assistant professor of IS at DePaul University in Chicago.

Intelligence Files

What's on your mind?

What are the Top 10 information technology issues on the minds of executives? Richard D. Koeller wanted to know, so the former vice president of information systems at Whirlpool Corp. conducted his own private, admittedly unscientific, but nonetheless revealing survey of 58 senior executives, chief information officers, academics and consultants.

Koeller found that the No. 1 issue on the minds of all respondents is the value of information technology to the business — actual or perceived. Cost reductions are important but so is leveraging information technology to improve company performance. Many participants are thinking about competitive benchmarking, assessment processes and evaluating outsourcing alternatives.

"Getting your money's worth is critical, not the absolute cost," one senior executive responded.

Four issues received a "very high" rating for importance. They include developing a business-driven information technology plan, facilitating re-engineering projects, providing an internal and external customer focus to a company's information technology efforts and managing the information technology infrastructure to prevent inefficient, redundant and incompatible technology acquisitions.

The respondents indicated that information technology plans are not well-linked to business plans and that information technology is often blamed for re-engineering failures even when re-engineering is considered the responsibility of business managers.

IT's Top 10 Executive Issues

Rank	Issue	Importance
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	Very high
4	[illegible]	Very high
5	[illegible]	Very high
6	[illegible]	High
7	[illegible]	High
8	[illegible]	Medium
9	[illegible]	Medium
10	[illegible]	Medium

Source: Richard D. Koeller, president, Koeller & Associates, Chicago

Management control and management processes were given a "high" ranking on Koeller's Top 10 list. Keeping information technology projects and operations under control and integrating information technology into the normal management processes of the company were also priorities.

Koeller concludes that IS projects often go awry because management processes do not provide adequate business management participation and ownership.

At the same time, the unique management issues of the information technology function are not being addressed by current management processes.

Koeller says the communication gap between information technology and management is widening at a time when information technology is becoming even more crucial to the success of the business.

All in all, Koeller's list indicates IS has a long way to go before it is truly aligned with business.

Award winners announced

Connecticut Mutual Insurance Co., the Massachusetts Department of Revenue and the U.S. Air Force's Alaskan Air Command are among the winners of this year's Achievement in Managing Information Technology Awards, sponsored by American Management Systems and Carnegie Mellon University in Pittsburgh.

The insurance company was recognized for a customer service-improving re-engineering effort. The Massachusetts agency won for its child support enforcement system, which boosted compliance from 59% to 76%.

The Alaskan Air Command was honored for its transportable battlefield and air rescue information system.

Exchanges merge trading

Members of the New York Mercantile Exchange (NYMEX) and the Commodity Exchange of New York (COMEX) have agreed to merge the leading exchanges involved in oil and gold futures trading. Under the merger, in which NYMEX will pay more than $60 million to members of COMEX, the two exchanges are expected to cut their expenses by merging redundant computer operations.

Daniel Rappaport, chairman of NYMEX, predicted the merger would help the two organizations cut their combined expenses by up to $6 million. The merger still requires the approval of the Commodity Futures Trading Commission.

A vision for the superhighway

The U.S. Department of Commerce has released a report, "Putting the Information Infrastructure to Work," intended to spur public discussion on how people and organizations use the information superhighway. The report looks at opportunities and obstacles in seven key applications: manufacturing competitiveness, electronic commerce, health care delivery, educational learning access, environmental monitoring, library access and government services. To obtain a copy, order PB 94-163383 prepaid from the National Technical Information Service, Springfield, Va. 22161 or call (703) 487-4650.

Calendar

MAY 22-28

International Communications Association (ICA) Expo Dallas '94. Dallas, May 22-23 — Both conference and exposition will focus on strategic issues involved in managing the enterprise network. The full range of communications solutions, from office LANs to intercontinental voice/data networks, will be demonstrated at the exhibits and discussed at the conference. Contact: ICA, Dallas, Texas (800) 422-4636.

SynOptics Users Group Conference. Santa Clara, Calif., May 22-25 — Keynotes from SynOptics Communications, Inc. Contact: SynOptics Users Group, Santa Clara, Calif. (408) 988-2400.

Viasoft, Inc. User Conference. Phoenix, May 22-25 — Contact: Viasoft, Phoenix, Ariz. (602) 952-0050.

First Ever Manufacturing Execution Systems Association (MESA) Roundtable. Chicago, May 23-24 — MESA International is a not-for-profit trade association whose members are vendors of integrated MESA and related technologies, including point solution, hardware platforms, database, systems integration services, data collection technology, controls and consulting services. Contact: Bill Hankanson, MESA International, Pittsburgh, Pa. (412) 781-9511.

Home Banking Forum. Chicago, May 23-24 — Theme: "Home Banking in an Interactive Age." Keynote speaker is Wesley C. Tallman, executive vice president of Visa International product and market development and president and chief executive officer of Interlink. Contact: Faulkner & Gray, Inc., New York, N.Y. (212) 967-7160.

Principles and Techniques for User Interface Design. Ann Arbor, Mich., May 23-25 — Contact: Engineering Conferences, The University of Michigan, Ann Arbor, Mich. (313) 764-8490.

Women focus of Hopper conference

The inaugural Grace Hopper Celebration of Women in Computing conference will be held June 9-11 at the Loews L'Enfant Plaza Hotel in Washington.

Grace Hopper

The conference is sponsored by the Computing Research Association, the Association for Computing Machinery and the Institute of Electrical and Electronic Engineers-Computer Society. The conference is named for the late Grace Hopper, the first computer operator in this country and later an admiral in the U.S. Navy.

The Grace Hopper Celebration is a technical conference that will highlight discussions by many of the leading women in the computer industry. It will also provide an opportunity to hear women in the computing field discuss their contributions and visions of the future.

The keynote speaker will be Anita Jones, director of defense research and engineering for the Department of Defense. For information, call Pavani Diwanji at (415) 336-3700, or send E-mail to hopper-info@pa.dec.com.

Comdex/Spring '94 and Windows World. Atlanta, May 23-26 — Contact: The Interface Group, Needham, Mass. (617) 449-6600.

DB/Expo '94: Database, Client/server & Technology Exposition & Conference. San Francisco, May 23-27 — Keynote speakers: Bill Gates of Microsoft Corp., Philippe Kahn of Borland International, Inc., Larry Ellison of Oracle Corp., Steve Jobs of Next Computer, Inc. and Umang Gupta of Gupta Corp. Contact: Blenheim NDN, Inc., Mountain View, Calif. (415) 966-8934.

Re-engineering Business Processes. Itasca, Ill., May 24-25 — Contact: David W. Burke, Sandra Conn Associates, Chicago, Ill. (708) 395-7990.

First Annual On-demand Digital Printing & Publishing Strategy Conference & Exposition. New York, May 24-26 — Targets commercial printers, publishers, quick-copy print providers and service bureaus, as well as corporate, government and institutional offset and laser printing, high-speed copying and IS/data centers. Contact: Expocon Management Associates, Inc., Fairfield, Conn. (203) 256-4700.

LAN/Securities and Exchange Commission '94. Washington, May 24-26 (Also one-day optional preconference workshops on May 23 and optional postconference workshops on May 27) — Focus: LAN security and control challenges. Contact: Pam Bissett, MIS Training Institute, Framingham, Mass. (508) 879-9792.

Strategy Conference and Exposition. New York, May 24-26 — Contact: Expocon Management Associates, Inc., Fairfield, Conn. (203) 256-4700.

12th Annual Information Management Conference. New York, May 25-26 — Contact: The Conference Board, Inc., New York, N.Y. (212) 339-0345.

Annual 1994 Midwest Computer Show. Rosemont, Ill., May 25-27 — Contact: Illinois Certified Public Accountant Society's Continuing Professional Education Department, Rosemont, Ill. (312) 993-0393.

MAY 29-JUNE 4

Spring Internet World '94 & Document Delivery World '94. San Jose, Calif., May 31-June 3 — Sponsored by *Internet World* magazine and The Commercial Internet Exchange. Contact: Schwartz Public Relations Associates, New York, N.Y. (212) 677-8700.

CAUSE/Coalition for Networked Information Regional Conference. Philadelphia, June 1-3 — Sponsored by The Coalition for Networked Information. CAUSE is the association for managing and using information technology in higher education. Contact: CAUSE, Boulder, Colo. (303) 449-4430.

Re-engineering: The Implementation Perspective. Cambridge, Mass., June 1-3 — The conference provides an introduction to the concepts and objectives of re-engineering with an analysis of the business factors driving it. The instructor will be Michael Hammer of the Center for Re-engineering Leadership in Cambridge, Mass. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555.

1994 AME Best of the Midwest Regional Conference. Chicago, June 2-3 — Theme: "Leadership Beyond the '90s." Keynote speakers: Allan Cox, the head of Allan Cox & Associates, and Phillip R. Thomas, founder and chairman of Thomas Group, Inc. Contact: Association for Manufacturing Excellence (AME), Wheeling, Ill. (708) 520-3282.

Executive Track

American Express Bank Ltd. in New York has announced the appointment of **Martin Donnelly**, 47, as executive director of global client services in New York.

His responsibilities will include coordinating and delivering standard systems and operational products on a worldwide basis and centralizing the various country, regional and area operations into a single integrated entity.

Prior to his appointment, Donnelly was global business channel director at Citicorp. He was responsible for directing the design, development and support of Citicorp's commercial banking systems infrastructure in more than 70 countries. He began his career at Citicorp in 1974 as a systems officer and project manager.

The **National Association of State Information Resource Executives** (NASIRE) has announced changes in appointments for four of its members. **Curt Pederson** of Oregon has been appointed chief information officer at the Information Resources Management Division of the Oregon Department of Administrative Services. He replaces Jerry Schmitz, who retired earlier this year.

Paul Maxson of New Jersey has been appointed acting administrator of the Office of Telecommunications and Information Systems of the **New Jersey Department of the Treasury**. He replaces Elaine Davis, who has left New Jersey state government.

John Ruffin of Mississippi has resigned as executive director of Mississippi's Central Data Processing Authority.

Also, **John Thomas Flynn** of Massachusetts, director of management information systems and finance, has been appointed to serve as one of NASIRE's two eastern regional directors.

Erling G. Anderson has been appointed director of IS at **Community General Hospital of Sullivan County** in Florida.

Robert O. Wucher has been appointed director of clinical IS at **The Hospital for Sick Children** in Washington. He was previously director of IS at Fairfax Hospital in Falls Church, Va.

Janice M. Kastens has left her position as director of IS resources at **Lutheran Medical Center** in Wheat Ridge, Colo., to join **Chi Systems, Inc.** in Ann Arbor, Mich., as senior consultant.

Fortis, Inc. in New York, an insurance and financial services company, has announced the appointment of **Gordon Jager** as vice president of systems architecture. Jager will oversee all facets of systems architecture design.

Jager began his career with Fortis in 1975 as a programmer trainee. He has progressed through the ranks to various high-level management posts including senior IS officer, senior group management information officer and senior benefits officer.

Prior to his latest appointment, he was second vice president of application design.

Kim A. Hansen has left her position as director of management information systems at **Holmes Regional Medical Center** in Melbourne, Fla., to take a position as an account sales representative at IBM's **Rolm Systems** in Tampa, Fla.

Karen Antion has been appointed CIO for the Port Authority of New York and New Jersey. She reports to Barry Weintrob. Her responsibilities include program strategies, direction and leadership for the IS department. She was previously CIO for the city of Hartford, Conn.

Priscilla Tate has left her position as executive director of the Microcomputer Managers Association in Warren, N.J., to concentrate on independent consulting. **Alex Kask**, a founder of the Microcomputer Managers Association and former president of the organization, is the interim director.

USLife Corp. in New York has announced the appointment of **Louis Lam**, 30, as assistant vice president of corporate planning. Prior to the appointment, Lam was an IS analyst at USLife.

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SPECIAL QUARTERLY SECTION

RE-ENGINEERING THE WORKPLACE:

CUSTOMER SERVICE

Best face forward

From service desks to enterprise shake-ups, companies re-engineer to turn customer service talk into action

THE TYPICAL U.S. COMPANY TODAY BLOWS ENOUGH HOT AIR ABOUT CUSTOMER SATISFACTION TO beat all its buildings for the next year. Pipe in the clatter over re-engineering and it's a formidable blast of blather indeed.

But talk is (usually) cheap. It's still the rare organization that actually blows away customers with super service and satisfaction. True, Ritz Carlton, The Home Depot, Inc., Wal-Mart Stores, Inc. and a handful of others walk the walk. In such firms, training, management, processes and technology combine beautifully to coddle customers.

In many companies, pleasing purchasers remains an uglier struggle. Petty politics, technophobia, technomania and — ironically — the pursuit of short-term profits doom many businesses (and their customers) to mediocrity.

BY JOSEPH E. MAGLITTA

Yet according to several recent surveys, a richly financed revolution in customer-centric re-engineering is in full swing. Consider: A CSC Index, Inc. study says U.S. companies will spend $1 billion on customer-oriented technology in 1994. Studies by Arthur D. Little, Inc. and Deloitte & Touche (see chart at right) place field service, order processing, help desks, marketing and other customer-focused functions at the top of the list of re-engineering priorities.

Some, such as **Bankers Trust Co.** (page 102) and **Levi Strauss North America** (page 106), are redesigning carefully chosen key processes. At the **Fort Myers News-Press** (page 101), a new AS/400-based system helps advertising representatives better service new accounts and prospects. **Norfolk Southern Corp.** (page 102) re-engineered its national service operations, centralizing 52 offices into one. Others, including **Spartan Stores, Inc.** (page 107), are shooting for a complete, customer-focused transformation.

Regardless of scope, the smarter firms speak of "customer management" and look beyond single functions to every place where buyer meets seller.

The most successful are discovering that good customer-pleasing re-engineering is like good selling: Say and do as much as needed, then do a little more.

Maglitta is *Computerworld*'s senior editor, corporate strategies.

THE CUSTOMER IS ALWAYS RIGHT — FOR RE-ENGINEERING

Functions that directly impact customer satisfaction made up more than 50% of all re-engineering projects tackled by more than 400 large U.S. and Canadian companies. Other polls found similar results.

17%	ORDER PROCESSING
15%	CUSTOMER SERVICE
9%	SALES AND MARKETING
6%	DISTRIBUTION
5%	INVENTORY AND WAREHOUSE

Source: Deloitte & Touche, Wilton, Conn.

Ray Morsch

FORT MYERS NEWS-PRESS

DICK ETHIER WOULD LIKE TO PUT MERCHANTS' ADS IN readers' hands with the same accuracy that paper carriers land the *Fort Myers News-Press* on west Florida lawns.

Ethier, director of MIS at the 135,000-circulation morning daily, also wants to minimize delivery and billing hassles for new readers in five areas around Lee County — for a reader who might mistakenly think he lives on "Nine-Iron Court" but who really lives on "Nine-Iron Drive," for instance.

He's hoping to accomplish both goals (and boost sales) with new processes and information systems aimed at finding, managing and retaining small customers. The publication's parent, Gannett Co., is hoping so, too.

Indeed, the nation's largest newspaper publisher would like to transplant several customer-focused pilot projects under way at the *News-Press* to its 81 other dailies. Judging from early results, other Gannett papers should be eager to read all about it.

Take the new telemarketing process and system. Like many small and medium-size newspapers, the *News-Press* tracked advertisers informally. A staff of 30 reps kept handwritten notes on sales calls.

Last fall, Larry Sackett, Gannett's corporate director of database marketing, asked Ethier to pilot a new way to locate and service advertiser accounts.

An IBM System/38 user, Ethier had never even seen an AS/400. But soon he was building an "opportunity database" using TeleMar software from Information Management Associates in Trumbull, Conn. Files from Dun & Bradstreet and Database America as well as existing System/38 data were uploaded and merged.

Simultaneously, Ethier and the paper's marketing department rethought the sales process. They decided to off-load up-front work previously handed by reps to one full-time and one part-time data entry operator and a systems administrator. Using the system, the team identifies prospects and generates lead sheets and appointment schedules, which are then assigned to the proper rep.

The new approach has boosted sales by 40%, Ethier says. It has also blurred the line between sales and service, he adds, for the better.

"We now know more about customers, and we have more detailed information so we can serve them better. Everybody wins."

How? The 19,500 prospects and advertisers are categorized by SIC, geography, location, type of business, buying habits and other demographic information. So an advertiser interested in an automotive special can be alerted ahead of time, for instance.

The new approach helps buyers figure the best combination of ad frequency, variety, size and seasonal approach. In winter, for example, businesses like to run big, splashy ads. Off-season, they prefer target marketing.

"Say Kash n' Karry comes to us. They say, 'Can you do this insert? I only want it delivered in a five-mile radius around my store.' We can do that kind of direct target marketing now. We'll be able to do it a lot better in the future."

The effort cost about $45,000 for software, programming time and maintenance, Ethier says.

He has big plans for the future. IS is now linking TeleMar with the paper's major advertising application and plans to merge it with editorial and circulation databases.

"No one falls through the cracks anymore," he says.

A PILOT PROJECT RUN BY DICK ETHIER OF THE FORT MYERS NEWS-PRESS COULD EVENTUALLY CHANGE HOW ADVERTISER SERVICES ARE HANDLED AT ALL OF GANNETT'S 81 NEWSPAPERS

BANKERS TRUST COMPANY

"THE ONLY TIME I WANT SOMEBODY GETTING UP IS TO GO to the bathroom." The Bankers Trust Co. executive was only half-joking. The serious message: Speed up service and reduce the time account reps spend away from desks chasing paper, microfiche and printed reports.

Two years ago, the New York-based trading house's domestic custody department did just that.

The result: a streamlined process that uses a system based on Novell, Inc. LANs and Lotus Development Corp.'s Notes to handle calls from U.S. and offshore banks, insurance companies and other corporate investors.

Already, the new approach has saved thousands of research hours and eliminated the need to print 50,000 report pages a day, says Roger Porcella, vice president of global assets technology. And it has smoothed dealings among bank offices, he adds.

"With mortgage-based securities there are always questions about payments and rates," Porcella explains.

For example, a caller might ask why his interest rate was 2% when a newspaper quoted 3.4%. It is a simple question, but one that often triggers a lengthy paper pass-around. Previously, some 100 account administrators wrestled with dumb terminals, screen dumps, handwritten forms and thousands of pages of paper reports. For older cases, microfiche was mailed in from New Jersey.

Time spent

"People would stop doing work, get up from their desk, walk around, look at old reports, get on-line with the [IBM] 3090 mainframe. Getting an answer could take a week," Porcella says. Most days bring 20 to 30 complex calls.

So Porcella, another information systems worker and two independent consultants set out to devise a new approach. Their solution: electronic "case files." The idea was to make all necessary information, whether it originated in-house or not, accessible from a PC. They hoped to reduce handoffs and runarounds.

In late 1992, LAN installation began. Users were called in to help design the new flows and system — dubbed "BT Edge." New code was kept to a minimum — a small amount in Visual Basic. The project went live in January 1993.

Now when a customer phones with a question, administrators call up the client's Notes-based "case" on an IBM PS/2 Model 90 running Windows. Problems that can't be handled locally are kicked over leased lines and Cisco Systems, Inc. routers to a Bankers Trust office in Nashville.

Since BT Edge went on-line 16 months ago, most requests are handled in minutes, Porcella says. In the worst cases, requests get answered on the same day.

Improved data access, storage and distribution anchor the redesign. Each night, report data is downloaded to FileNet Corp. optical jukeboxes. Users access "near-line" data and images with Stor/QM from Microbank Software, Inc. Files are moved about with workflow software from Action Technologies, Inc.

In January, Porcella's group began upgrading to Notes 3.0 and installing TCP/IP and IBM's NetView. The system links to an in-house customer notification system at the bank's central data center in New Jersey. "It's not been easy," Porcella says. "You can't underestimate the communications problems," especially with IPX.

Yet he says the headaches have been worth it. Besides huge reductions in response times, the redesign has allowed 27 researchers to shift departments into more valuable roles, he says.

And the goal of never leaving desks? "We can't actually achieve it," Porcella jokes. "But we've come close."

TIPS FOR CUSTOMER-DRIVEN RE-ENGINEERING

SURVEYS AND INTERVIEWS ARE OK. BUT THERE'S NOTHING LIKE WORKSHOPS AND PHYSICAL OBSERVATION TO REALLY UNDERSTAND WHAT MAKES YOUR COMPANY'S CUSTOMERS HOOT.

WHY NOT VIDEOTAPE A DAY IN THE LIFE OF YOUR CUSTOMERS?

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WHEN YOU'RE DONE, YOU'LL HAVE A GOOD LIST OF THINGS THAT MAKE YOUR EXTERNAL CUSTOMERS HAPPY — IN THEIR OWN WORDS.

Sources: Francis Goullart, Gemini Consulting, Cambridge, Mass.; *Building Market-Focused Organizations* by Michael J. Lanning and Lynn W. Phillips, Louis Fried, SRI International, Menlo Park, Calif.

NORFOLK SOUTHERN CORPORATION

ONE VOICE, AROUND THE CLOCK. THAT'S WHAT Norfolk Southern Corp. wanted callers seeking information on shipping, billing, tracking and scheduling to hear. No more handling scattershot inquiries at 52 sales offices around the country. No more limiting service to 8 a.m. to 5 p.m. Monday through Friday.

There's plenty to track: The $5 billion transportation holding company runs a major freight railroad with 2,048 locomotives and 107,400 cars. It also owns trucking firm North American Van Lines, Inc. Both businesses haul enough "ton-miles" to bring in a staggering $107 billion in revenue each year.

Even so, management wanted to make "24-hour-a-day by seven-day-a-week" service as easy for customers as dialing a single, nationwide 800-number. So in 1991, the Norfolk, Va.-based firm took a big step back and began rethinking how it handled customer calls.

The culmination of three years of intensive process, organizational and technological thought opened in Atlanta last fall.

The company's new National Customer Service Center gives customers one-stop access to all Norfolk's services, director Gene Dorminey says.

Now, common queries about shipping weight, estimated arrival times, diversions, expediting and more are handled quickly by a reorganized, newly centralized staff using sophisticated computer/telephone integration.

To facilitate the re-engineering, Norfolk restructured national sales. All but 13 strategically located branches were closed, and support functions were shifted to Atlanta. There, 52 reps were regrouped into one of six "commodity groups." Each specializes in a key area such as chemicals, metals or agricultural goods.

System work began in mid-1992, 18 months before implementation. The firm's information systems group and AT&T Corp. created and mapped technology strategies. Cost Center Solutions in Raleigh, N.C., and Early, Cloud & Co. in Newport, R.I., handled telephony and screen design, respectively. The first systems rolled out in October 1993, the last in December.

Here's how the re-engineered process works: Customer calls come through an AT&T toll-free Integrated Services Digital Network. An Automatic Number Identification (ANI) service searches a Tandem Computer, Inc. machine for a customer profile.

Within two rings, the customer's computer file is matched with the telephone call. It's then delivered on-line through a screen pop-up on the appropriate agent's workstation, an IBM PS/2 with OS/2, 665M bytes of storage and a 21-in. NEC Corp. monitor.

One call only

Dorminey says, "80% of inquiries are resolved on the first call. If it cannot be, we make a commitment when we will call back."

The new system handles 2,000 calls a day, he says. Of these, 70% are matched with ANI. Those that are not are sent to an agent who can find or build a record.

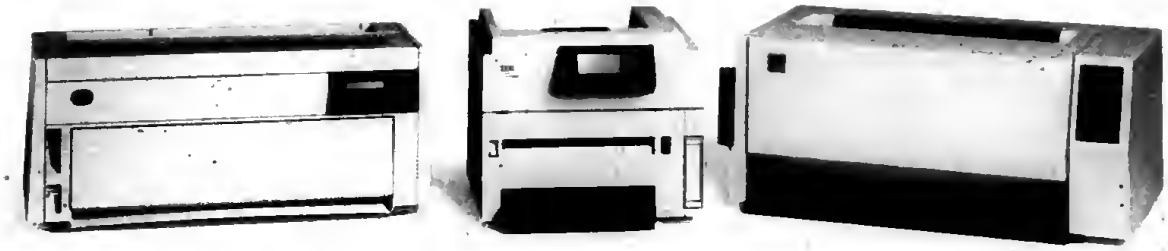
Agents can summon help from another department, such as accounting or billing, by simply clicking on an icon or setting up a conference call.

Officials say the new approach brings the company much closer to offering the "seamless transportation" mandated by the American Railroad Association by 1995.

The company won't reveal the project's cost but says it exceeds several million dollars. "This is not a cost-saving measure," Dorminey says. "This is an enhancement to the business."

Dorminey's re-engineering advice? "Be as good as you can be the day you go up. Don't still be prototyping."

What you get out of it



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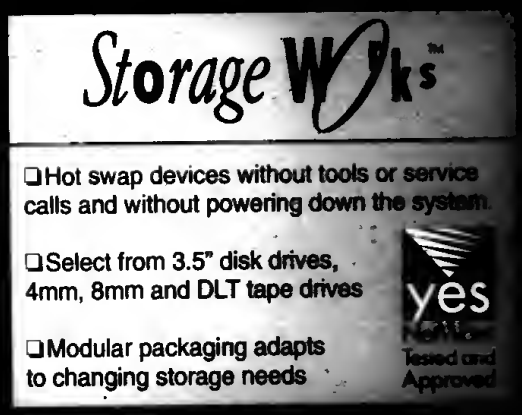

digital

LEVI STRAUSS

WHEN YOU MISPLACE A pair of Levi's, checking under the bed or in the laundry room usually does the trick. But if you are Dillard Department Stores, the hunt gets much more complicated.

Tracking shortages, substitutions and price differences used to be a paper nightmare, says Ralph Sackman, systems specialist in customer receivables at Levi Strauss North America.

The problem: a fragmented production line system. Until January, customer reps had to manually match many sheets of paper with a computerized deduction record. The average claim took 36 days to process.

"One customer sent a debit memo eight different times, and we still didn't have it resolved," Sackman says.

Even in the best cases, he says, "the process was time-consuming and very frustrating for all involved."

It's easy to understand why the first major imaging project at Levi came from a re-engineering effort at its customer claims center in Walnut Creek, Calif.

The 150-person center handles merchandise returns and claims from the thousands of retail outlets that sell Levi's jeans and apparel. Millions of dollars flow — or don't flow — through it daily.

Imaging solution

So four years ago, Sackman and others looked at the U.S. Automobile Association's use of imaging technology and saw big potential to re-engineer customer claims-handling. They felt certain that faster service, higher employee satisfaction and productivity and better cash flow would result.

After tackling feasibility and return-on-investment studies, Levi's board approved the hiring of Trident Systems, a San Francisco imaging integrator.

On site, basic process flaws turned up quickly. Example: Problems were stored by code, not by customer. That provided a neat record for company managers but did nothing to help customers.

Now, in most cases, one person handles all issues relating to a customer query.

The technology core of the redesigned approach was dubbed Denims — Document Entry and Image Management System. The new system preassembles all relevant documents and computer records and makes them more easily retrievable on-line.

Reps capture and use mainframe customer data using Compaq Computer Corp. DeskPro 50 PCs with 19-in. monitors and a FileNet Corp. imaging and workflow system.

So far, gains are modest. The average time needed to process a claim dropped to about 30 days, according to Sackman. (The eventual goal is 10 days.)

More dramatic is how customer rep roles have changed. Before, the job was mostly clerical. But after an extensive in-house training program, it became a more technically skilled, service-oriented position.

Future expansion plans call for linking Denims with accounts receivable. This would permit a small group of people to access the full spectrum of customer records and documents, from credit extension to final resolution.

Long term, Sackman says the "multi-million dollar" re-engineering and imaging project will yield a five-year ROI of 82%.

"Before, we had a production-line approach. Imaging helps bring it back to a single point of contact . . . back to a natural way of doing things," he says.

Contrary to p
this is not the first step in impl

Ironic, isn't it? Companies across America are being led to think raising productivity through workflow means razing their enterprises right down to the ground.

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And, knowing how closely top management

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SPARTAN STORES, INC.

RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE

SPARTAN STORES, INC. STARTED OUT TO RE-ENGINEER A CREAKY financial process. It ended up with a plan to transform its entire $2.1 billion business.

And it's a good thing. During the last few years, hungry foes have eaten into Spartan's lucrative wholesale food distributorship. Supervalu, Inc., Roundy's, Inc., Wal-Mart Stores, Inc., Kmart Corp. and other "alternative format" grocers often can sell goods cheaper and faster. They do so in part by bypassing Spartan and other middlemen on the supply chain between producers and retailers.

True, after 77 years, the Grand Rapids, Mich.-based cooperative still supplies more than 550 supermarkets. But in the long term, diversification and cost-cutting were needed.

So in 1992, Spartan started to revamp a key order-fulfillment and billing system. "We had basically been patching up a bunch of old legacy systems on an IBM 3090-400J running MVS/ESA," explains Ken Vink, a senior business analyst who reports to Spartan's 150-person information systems department.

It quickly became clear that modernizing the order system was just a Band-Aid, Vink says. Spartan made a crucial decision to reinvent itself from grocery wholesaler to full-service distributor.

A team of eight Spartan executives, including IS, operations and procurements, worked for three months to hammer out a plan. Hundreds of interviews were conducted with truck drivers, distribution workers and inventory control supervisors. Some 321 processes were identified. The goal: Use technology to reduce that number by two-thirds.

The result was a full-blown, three-year re-engineering initiative called Business Automation Support Environment (BASE). The idea is simple: Apply just-in-time principles to food delivery. That means less food in storage and faster delivery, officials say. Execution proved a bit more complex, though.

Re-engineering is risky, Vink says. "You're basically putting the organization into convulsions. You ride an emotional roller coaster."

Efficiency improvement

A philosophy called "Efficient Consumer Response" is supposed to cut costly inefficiencies from the distribution chain. Projects are underway in nine key areas, including distribution, logistics, inventory, order management, financial systems and procurement.

IBM's Integrated Systems Solution Corp. (ISSC) serves as the general contractor, supported by IBM's Business Practice Engineering Group in Dallas and Complete Business Solutions, Inc. in Farmington Hills, Mich. The 60-person team, including six full-time Spartan IS staffers, works from nearby ISSC offices.

Client/server and object-oriented products will anchor the effort. A team led by Bill May, Spartan's vice president of MIS, is still deciding key issues, such as the right mix between commercial and custom software.

A "model supermarket" project will demonstrate the latest in-store processing technology such as radio-frequency terminals and an electronic catalog. A "model vendor" program will explore ways that electronic data interchange can strengthen partnerships with big customers such as General Mills, Inc., RJR Nabisco, Inc. and Quaker Oats Co.

Re-engineering has started to alter how Spartan organizes itself. Inbound and outbound logistics recently were split into separate groups, for instance.

Officials say the multimillion project could yield an annual savings of $20 million. BASE should be complete in 1995. "If we don't do it, we'll slowly deteriorate. We want to accelerate," Vink says.

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watches the bottom line nowadays, we've also made it easy to champion the work management concept through your organization. Wang OPEN/work-

flow captures information about *cost of work* as well as the time it takes – even for manual activities. Thus enabling you to demonstrate true impact on key factors like cost, efficiency and productivity.

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COUNSEL CORNER

RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE

"ANY PLACE A CUSTOMER has an interface with the company, we need to be managing, whether it's order-processing or claims or transportation or engineering or scheduling or sales. We need that entire cross-functional team. Customer service, sales, marketing, production, claims and credits — all should have cameos as well as [information systems]. Leading companies are realizing the value of customer management and of managing that function with better information. How do we decide to increase service, for example? It's a great challenge."

Pam McNamara
Manager of logistics programs
Arthur D. Little, Inc.
Cambridge, Mass.

"CUSTOMERS TODAY ARE BECOMING more demanding. They expect more quality and more service. But you can involve them in decision-making at multiple levels.

"On the Boeing 777, for example, Boeing's design team brought in their biggest customers, United and American. They had engineers designing the whole plane in ways you wouldn't think of. Things like seats that could move and be reconfigured. They made a lot of design changes because they were the people who really knew the end users. A lot of companies will start with a couple of functions such as help desk or order-processing. Do what you can."

Linda Schwartz (pictured)
Consultant
Towers Perrin
San Francisco

"IN THE 'CASE WORKER' MODEL, AN individual performs activities previously performed by many, such as order-management, order-processing, service and help desk.

"To get started, prototype the idea with one person. Take an individual, make him a case worker and build a team around him. Assign him one or two or three customers. Let him do everything — write the letters, handle the orders. The principle is one customer, one person. That way you can do 'mass customization' — different things for different customers at the same time.

"The first challenge is getting others to participate. You'll want to get an [organizational development] specialist or behavioral specialist involved. Get them to form the team. Next, get top-down sponsors. That's often the role of outsiders. You have to manage groups both inside and outside. If one person can do it, you can create an incredible human dynamic."

James Gilmore
Principal
Cleveland Consulting Associates
Cleveland

"CLEARLY, THE LINE BETWEEN companies and customers has been fading. But what activities does a company do that will allow it to deal with defections on a systematic basis?

"A lot of companies handle such problems ad hoc: The first thing you do is blame the customer. But that's not a practice equated to long-term retention. What we are really looking for is a measure of 'dissatisfaction' in field service, order-fulfillment and other functions.

"Ultimately, the vision most people are headed toward is letting the customer define satisfaction and what level of service they need."

Marc Rubin (pictured)
Manager, customer management practice
Arthur D. Little, Inc.
Cambridge, Mass.

The above ideas for action and consideration were excerpted from Computerworld *interviews with leading customer-service consultants.*

Aug 07 | Aug 08 | Aug 09 | Aug 10

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Trade and business press hail workflow as the method of choice for supporting business process re-engineering and automation. Workflow technology keeps information flowing properly within an organization's framework and insures that the proper items make it to the proper people at the appropriate time. Workflow '94 will answer key questions to be asked by any organization planning to implement or currently implementing workflow technology.

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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin Svs.
23. Dir./Mgr. Sys. Development, Sys. Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific R&D Tech. Mgt.
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12 Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer

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70 Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT

80 Educator, Journalists, Librarians, Students
90 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems

(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑ Yes ❑ No
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70 Mining/Construction/Petroleum/Refining/Agric.
80 Manufacturer of Computers, Computer Related Systems or Peripherals
85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90 Computer/Peripheral Dealer/Dist./ Retailer
95 Other_____ (Please Specify)

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23 Dir./Mgr. Sys. Development, Sys. Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific R&D Tech. Mgt.
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Launched in 1989, the Computerworld Smithsonian Awards Program salutes those who find answers with information technology. This annual awards program, representing a spirited partnership between Computerworld and the Smithsonian Institution's National Museum of American History, brings together the user and vendor communities in public recognition of innovation and hard work.

1994 Finalists nominated by the Computerworld Smithsonian Awards Chairmen's Committee:

BUSINESS & RELATED SERVICES

QUALCOMM Incorporated
CDMA Wireless Technology
Nominated by Price Waterhouse

LDS Hospital
Care Analysis Database
Nominated by Arthur D. Little, Inc.

PepsiCo Food Systems (PFS)
CASTLE Initiative
Nominated by Price Waterhouse

Kmart Corporation
Seasonal Merchandise Management System
Nominated by Intel Corporation

Mervyn's, Inc.
Retail Inventory Management Systems
Nominated by Sequent Computer Systems, Inc.

EDUCATION & ACADEMIA

Institute for Research on Learning
Middle-school Mathematics through Applications Project
Nominated by Xerox Corporation

National Captioning Institute Inc.
Closed Caption TV and Video
Nominated by Price Waterhouse

Syracuse University, ERIC Clearinghouse on Information
AskERIC
Nominated by NYNEX Corporation

National Geographic Society, Educational Media Division
National Geographic Kids Network
Nominated by EDS

University of Los Angeles
Rebuild Los Angeles
Nominated by Silicon Graphics, Inc.

ENVIRONMENT, ENERGY & AGRICULTURE

Los Alamos National Laboratory
Neighborhood Environmental Watch Network
Nominated by Digital Equipment Corporation

Marine Spill Response Corporation
Spill Operations System
Nominated by EDS

Ariel Research Corporation
International Chemical Regulatory Monitoring System
Nominated by SAS Institute, Inc.

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Emission Reporting System
Nominated by Microsoft Corporation

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The Natural Heritage Network
Nominated by Dell Computer Corporation

FINANCE, INSURANCE & REAL ESTATE

Connecticut Mutual Life Insurance Co.
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Genesis
Nominated by Texas Instruments

General Motors
Electronic Funds Transfer
Nominated by EDS

Visa USA
VisaNet
Nominated by CompuServe

National Association of Securities Dealers (NASD)
Distributed Association Member Support
Nominated by Sequent Computer Systems, Inc.

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Maryland Department of Human Services
Electronic Benefit Transfer
Nominated by Price Waterhouse

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City Net, Inc.
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Nominated by CIMLINC, Inc.
Eastman Kodak, Dental Division
Systems Consolidation
Nominated by SAP America
Mazda U. S. Division System Services
Quality Information Management System
Nominated by Madge Network Systems
Convex Computer Corporation
Integrated Business Applications
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MEDIA, ARTS & ENTERTAINMENT
Fairway Technologies
Retail Digital Distribution System
Nominated by IBM Corporation
DirecTV and National Rural Telecommunications Cooperative
DirecTV for Rural America
Nominated by Price Waterhouse
Maxis
SIM Product Line
Nominated by Intel Corporation
Carnegie Mellon University
The Networked Virtual Art Museum: The Temple of Horus
Nominated by Intel Corporation
Industrial Light & Magic
Special Effects and Computer Graphics in "Jurassic Park"
Nominated by Silicon Graphics, Inc.

MEDICINE
Klinikum der Stadt Mannheim
Childbirth Simulation
Nominated by Cray Research, Inc. & EDS
Mayo Clinic
ANALYZE™
Nominated by Booz•Allen Hamilton, Inc.
Cuba Memorial Hospital
Telemedicine, Medical Education & Community Support
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Characterization of Choroidal Blood Flow
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Dupont
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Nominated by Cray Research, Inc.
Battelle Memorial Institute
Optical Digital Recording
Nominated by Intel Corporation
Los Alamos National Laboratory
Parallel Ocean Program
Nominated by Sun Microsystems, Inc.

TRANSPORTATION
Union Pacific Railroad, The Atchison Topeka & Santa Fe Railway Co.
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Nominated by Price Waterhouse
Hong Kong International Terminals Limited
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USAir, Inc.
Excalibur Revenue Management Systems
Nominated by Sequent Computer Systems, Inc.
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REPELLING *the* Wily Hacker

By William R. Cheswick and Steven M. Bellovin

You can't be too paranoid about security if you're on the Internet. From penetrable protocols to leaky servers, there are lots of ways the bad guys can get you.

"It is easy to run a secure computer system. You merely have to disconnect all dial-up connections and permit only direct-wired terminals, put the machine and its terminals in a shielded room and post a guard at the door."

—F. T. Grampp and R. H. Morris

For better or worse, most computer systems are oot run that way today. Security is, in general, a trade-off with coovenience, and most companies are not willing to forego the conveoience of remote access via networks to their computers. Inevitably, they suffer some loss of security.

The situation is worse for computers hooked up to some sort of network such as the Internet.

What follows is a look at some of the techniques hackers might use to attack systems, especially systems with access to the Internet, and what you can do about these attempted hreaches.

From *Firewalls and Internet Security. Repelling the Wily Hacker* by William R. Cheswick and Steven M. Bellovin. Copyright 1994 by AT&T Bell Laboratories, Inc. Reprinted by permission of Addison-Wesley Publishing Co., 1 Jacob Way, Reading, Mass. 01867, (800) 822-6339.

Cheswick and Bellovin are senior researchers at AT&T Bell Laboratories, where they designed and maintain AT&T's Internet gateway.

JANET HAMLIN

INFORMATION LEAKS

Most protocols give away some information. Often, that is the intent of the person using those services: to gather such information.

Welcome to the world of computer spying. The information itself could be the target nf commercial espionage agents or it could be desired as an aid to a break-in. The finger protocol is one obvious example: Apart from its value to a password-guesser, the information could be used for social engineering. ("Hey Robin, the battery oo my hand-held authenticator died out here in East Podunk; I had to borrow an account to send this note. Could you send me the keying information for it?" "Sure, no problem. I knew you were traveling. Thanks for posting your schedule.")

Another fruitful source of data is the Domain Name Service (DNS), a special distributed database. A wealth nf data can be gathered from it, ranging from organizational details to target lists. But controlling the outflow is hard. Often, the only solution is to limit the externally visible DNS to list gateway machines only.

Sophisticated hackers know this, of course, and don't take you at your word about what machines exist. They do address space and port number scans, looking for hidden hosts and interesting services. The best defense here is a good firewall; if they can't send packets to a machine, it's much less likely to be penetrated.

SOCIAL ENGINEERING

The social engineering approach usually involves a telephone and some chutzpah, as has happened at AT&T Corp.:

"This is Dennis Ritchie. Someone called me about a problem with the *ls* command. He'd like me to fix it."

"Oh, OK. What should I do?"

"Just change the password on my log-in on your machine; it's been a while since I've used it."

"No problem."

There are other approaches as well, such as mail spoofing. Attackers have been known to send messages like this:

"Bill, we have a visitor coming next week. Could you ask your systems administrator to add a log-in for her? Here's her password line; use the same hashed password."

It is worth noting that this procedure is flawed even if the note were genuine. The visitor should not use the same password on our machine as she does on her home machines. At most, this is a useful way to bootstrap her log-in into existence, but only if you trust her to change her password to something different.

Certain actions simply should not be taken without strong authentication. You have to *know* who is making certain requests. The authentication need not be for-

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Social

CONTINUED FROM PAGE 113

mal, of course. One of us recently "signed" a sensitive mail message by citing the topic of discussion at a recent lunch. And in most circumstances, an informal "three-way handshake" — a message and a reply, followed by the actual request — will suffice.

For more serious authentication, cryptographic mail systems are recommended. A word of caution, though: No cryptographic system is more secure than the host system it runs on. If a hacker has booby-trapped the routine that asks for your password, your mail will be neither secure nor authentic.

WORLD WIDE WEB, WORLDWIDE HEADACHE

Lately, the growth of what might be best termed as information protocols has been explosive. These include gopher, Wide Area Information Services and others, sometimes lumped together under the rubric World Wide Web.

While these information protocols differ greatly in detail, there are some essential points of similarity in how they operate.

Generally, a host contacts a server, sends a query or information pointer and receives a response. The response may either be a file to be displayed or a pointer or set of pointers to some other server. The queries, the documents and the pointers are all potential sources of danger.

In some cases, returned document formats include format tags, which implicitly specify the program to be used to process the document. For example, the gopher protocol has a "uuencode" format, which includes file name and mode. Blindly believing such information is quite dangerous.

The server is in some danger, too, if it blindly accepts pointers. These pointers often have file names embedded in them. While the servers do attempt to verify that the requested files are authorized for transfer, the verification process can be (and, in fact, has been) buggy. Failures here can let outsiders retrieve any file on the server's machine.

We would prefer a pointer syntax that included an optional field for a cryptographic checksum of the information. That would make the pointers self-validating, and it would prevent outsiders from concocting them out of whole cloth. But the problem is a difficult one.

Sometimes, the returned pointer is a host address and port and a short log-in dialog. We have heard of instances where the port was actually the mail port and the dialog a short script to send annoying mail messages to someone.

That sort of childish behavior falls into the nuisance category, but it may lead to more serious problems in the future. For instance, if a version of Telnet that uses preauthenticated connections becomes popular, that same stuo could cause someone to log in and execute various commands on behalf of the attacker.

THE DANGER IN FTP

Both the file transfer protocol (FTP) and the programs that implement it are real problems for Internet gatekeepers.

Anonymous FTP has become a principal standard on the Internet for publishing software, papers, pictures and so on. Most major sites need to have a publicly accessible anonymous FTP repository. But a fair amount of care must be exercised in administering it.

The first and most important rule is that oo file or directory in the anonymous FTP area be writable or owned by the FTP log-in, because anonymous FTP runs with that user ID.

Consider the following attack: Write a file named ".rhosts" to FTP's home directory. Then use that file to authorize an *rsh* connection as FTP to the target machine. If the FTP directory is not writable but is owned by FTP, caution is still indicated: Some servers allow the remote client to change file permissions.

The next rule is to avoid leaving a real "passwd" file in an anonymous FTP area. You can give a hacker no greater gift than a real "passwd" file. If your utilities won't choke, delete the file altogether; if you must create one, make it a dummy file, with no real accounts or (especially) hashed passwords.

Whether or not to create a publicly writable directory for incoming files is quite controversial. While such directories are undoubtedly a convenience, denizens of the Internet demimonde have found ways to abuse them.

You may find that your machine has become a repository for pirated software or digital erotica. This repository may be permanent or transitory; in the latter case, individuals who want anonymity from one another use your machine as an electronic interchange track. One deposits the desired files and informs the other of their location; the second picks them up and deletes them.

Our gateway machines clear the incoming file area nightly.

If feasible, use an FTP server that understands the notions of "inside" and "outside." Files created by an outsider should be tagged so they are not readable by other outsiders.

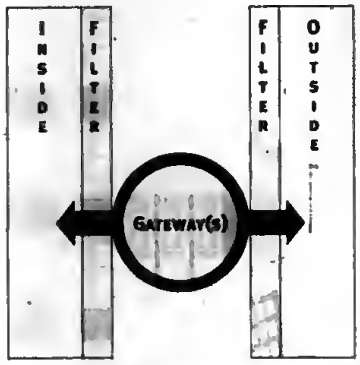
Alternatively, create a directory with search but not read permission, and create oddly named writable directories underneath it. Authorized senders — those who have been informed of the odd names — can deposit files in there for your users to retrieve at their leisure.

A FIREWALL FOR PROTECTION

A network may be configurable so that only one computer needs to talk to the outside world. Such dedicated computers, often called "firewall gateways" are at the heart of our suggested security strategy.

A firewall, if properly deployed against expected threats, will provide an organization with greatly increased security. Such gateways are necessary; there is a real threat to be dealt with.

A firewall, in general, consists of several different components. The **filters** block transmission of certain classes of traffic. A **gateway** is a machine or a set of machines that provides relay services to compensate for the effects of the filter. The network inhabited by the gateway is often called the **demilitarized zone**.



Source: William R. Cheswick and Steven M. Bellovin

Illustration: Dave Marshall

X11 SERVERS CAN'T BE TRUSTED

The X11 is the dominant windowing system used on the Internet today. It uses the network for communications between applications and the I/O devices (the screen, the mouse and so on), which allows the applications to reside on different machines. This is the source of much of the power of X11. It is also the source of great danger.

The fundamental concept of X11 is the somewhat disconcerting notion that the user's terminal is a server. This is quite the reverse of the usual pattern in which the per-user small, dumb machines are the clients that request services via the network from assorted servers. The server controls all of the interaction devices. Applications make calls to this server when they wish to talk to the user. It does not matter how these applications are invoked; the window system need not have any hand in their creation. If they know the magic tokens — the network address of the server — they can connect.

Applications that have connected to an X11 server can do all sorts of things. They can detect key presses, dump the screen contents and generate synthetic key presses for applications that will permit them and so on. In other words, if an enemy has connected to your keyboard, you can kiss your computer assets good-bye. It is possible for an application to grab sole control of the keyboard when it wants to do things like read a password.

Few users use that feature. And even if they did, there's another mechanism that will let you poll the keyboard up/down status map, and that one can't be locked out.

The problem is now clear. An attacker anywhere on the Internet can probe for X11 servers. If they are unprotected, as is often the case, this connection will succeed, generally without notifying the user.

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LOOKING UP PEOPLE

Two standard protocols, "finger" and "whois," are commonly used to look up information about individuals. The former can be dangerous.

The finger protocol can be used to get information about either an individual user or the users logged on to a system. It provides personal information, which is useful for password-guessers; it also reveals when the account was last used (seldom- or never-used accounts are much more likely to have bad passwords), where the user last connected from (and hence, a likely target for an indirect attack) and more.

To be sure, the most important output from finger — the mapping between a human-readable name and an electronic-mail address — is very important. For this reason, many sites are reluctant to disable finger. The point may be moot. If firewalls are used, the gateway machine will not have log-ins — and, hence, finger data — for most users. Nor, of course, will there be any point in trying a password-guessing attack against a firewall machine.

A reasonable compromise is to install a custom finger daemon that consults a sanitized database or that simply tells how to send mail to someone within the organization.

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DENIAL OF SERVICE

Some people like to slash car tires or deface walls. Others like to crash other people's computer systems.

Such behavior takes many forms.

The crudest and easiest form is to try to fill up someone's disks by mailing or FTPing them a few hundred megabytes.

It's hard to set an absolute upper bound on resource consumption; apart from the needs of legitimate power users, it's just too easy to send one megabyte a few hundred times instead. Besides, that creates lots of receiving processes on your machine, tying it up further still.

The best you can do is provide sufficient resources to handle just about anything (disk space costs less than a dollar a megabyte these days), in the right spots (for example, separate areas for mail.ftp, and especially precious log data), and make provisions for graceful failure.

A mailer that cannot accept and queue an entire incoming mail job should indicate that to the sender; it should not give an "all clear" response until it knows that the message is safely squirreled away.

Other forms of computer vandalism are more subtle. Some folks delight in sending bogus Internet Control Message Protocol packets to a site, to disrupt its communications.

Sometimes these are "destination unreachable" messages; sometimes they are the more confusing — and more deadly — messages that reset the host's subnet mask. (And why, pray tell, do hosts listen to such messages when they've sent no such inquiry?) Other hackers play games with routing protocols — not to penetrate a machine but to keep it from communicating with its peers.

Aggressive filtering can do a lot to protect you, but there are no absolute guarantees; it can be very hard to tell the difference between genuine messages, ordinary failures and enemy action.

SQL ASPIRATIONS

Learning to code efficient SQL? Start by acquainting yourself with the information located in the PLAN TABLE.

What do all successful DB2 installations have? The latest hardware from IBM? Sophisticated case tools and code generators? The hottest third-party software add-ons? Maybe. A resident SQL expert? Definitely.

While more DB2 installations recognize the value of experts who can help with poor-performing SQL, they'll be hard-pressed to find someone who goes beyond SQL statements that return desired result sets. Once the correct rows are returned, few take the time to determine whether the most efficient method was used.

But what does DB2 need to do to return that result set? Will a correlated subquery be better than a noncorrelated subquery? Will the ORDER BY clause kill response time? Which join technique will return the first row the quickest?

With a little effort, you could be the one with the answers. Becoming a SQL expert isn't that difficult. You're really striving to familiarize yourself with the DB2 optimizer, the decisions it makes about accessing the data and how it makes them. Once that information is under your belt, it's easier to understand why a given SQL statement performs poorly and what you can do to improve its performance.

Knowing what's important

Start by getting to know the EXPLAIN statement. It shows what the DB2 optimizer has determined to be the best way to obtain the result set and places the information about the chosen path in a PLAN TABLE. This information is important to learn because it gives clues about how the optimizer operates.

For example, the PLAN TABLE shows the order in which the tables in a statement will be accessed, as well as what join techniques will be used. Just saying FROM TABLEA, TABLEB and TABLEC in your SQL doesn't mean DB2 will access them in that order. Once you know the order, you have the opportunity to influence that decision.

Of course there are tools that attempt to interpret the PLAN TABLE, but first, dig into the DB2 manuals until you can understand what they're telling you.

Afterward, experiment with your more troubling SQL statements. Joins are especially tricky because both the join order and the join technique can affect a statement's performance. By using SPUFI or QMF (tools that execute dynamic SQL), quick changes can be made to the statement and the effect, and they can be judged immediately by checking the EXPLAIN results.

Initially, it's trial and error, but eventually you'll know what to try first. When confident that you've chosen a reasonable access path, execute the statement dynamically. Often you must use a monitoring tool to determine which version of a query is best, but queries with the fewest GETPAGES and lowest number of I/Os are generally preferred.

Eventually, you'll know that even though a correlated subquery is executed repeatedly for each row in the result set, it can outperform a noncorrelated query if the inner result set is large.

The ORDER BY clause is also relatively harmless if supported properly by an index, and a nested loop join will get the rows back to your application the quickest. ■

Stacey is a director at Comdisco, Inc. in Rosemont, Ill. He serves on the International DB2 User Group (IDUG) North American Conference Planning Committee and as a chairman of the IDUG Special Publication Committee.

Required reading

Information provided in the DB2 manuals on the EXPLAIN clause is so important that it's repeated twice: Chapter 5.2 in the DB2 Application Programming and SQL Guide on Improving Query Performance and Chapter 7.2 in the Administration Guide Volume III on Using EXPLAIN to Improve Query Performance.

Starting with how to create and populate the PLAN TABLE, the chapters define each column in the table and discuss the significance of the values there. They define the different access paths that the optimizer may choose and show how to identify these from the PLAN TABLE information.

You can use this chapter to learn DB2 sorting, prefetch and indexing. For example, how many sorts DB2 needs to satisfy your query, timing in building the result and the purpose of the sort are all in the PLAN TABLE.

Sort activity always affects query performance, as do the predicates in the WHERE clause that are indexable. Once DB2 hits one predicate that can't be indexed, those that come after it cannot be used in a matching index scan either. Just like the sort and prefetch, the PLAN TABLE shows exactly what index was chosen and which columns are indexable.

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Computer Management Sciences, Inc. is a full-service Powersoft Vendor with an 11 year national track record of providing multi-platform business solutions to our clients. We bring practical experience in building PowerBuilder solutions for mission critical situations. As a full-service PowerBuilder Vendor we provide:

- PowerBuilder Education
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We are an employee-owned company headquartered in Jacksonville, FL. Regional offices are located in ATLANTA, BOSTON, CHICAGO, GREENVILLE, SC, HARTFORD, AND PORTLAND, OR

National employment opportunities may be discussed with Robert Farrell, National Recruiting Manager.

Computer Management Sciences, Inc.

8123 Baymeadow Way, Jacksonville, FL 32256

FAX: 904/737-6376 • PHONE: 800/725-2674

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One of Europe's foremost manufacturers and developers of graphical data input peripherals, market leaders in their field with an enviable market share throughout Europe. In order to maintain its 'market-leading' position, our client now wishes to appoint a key individual to play a major role in the development of sales throughout USA.

You will be responsible for 'all aspects' of sales and marketing to secure the successful launch of an exciting new digitizer product and development of a nationwide dealer network.

The candidate will have a minimum of 3 to 5 years sales experience within the PC Industry and have an in-depth knowledge of graphical software such as CorelDRAW, Autocad LT, Aldus Freehand etc., and be able to demonstrate a high degree of business acumen and intuitive. Working from home, you will be located in the Mid West and have the ability for extensive travel throughout USA.

This position offers excellent ongoing product and sales training, with real opportunities for both growth and personal development.

Forward your resume to: Andrew Selwyn, Accord Management Services, The Oast, Mill Court, Mill Street, East Malling, Kent, ME19 6BU, England.

Telephone: 011 44 732 871575 Fax: 011 44 732 871585

PROGRAMMER

Envision your future with Northern Illinois Gas, the largest gas distribution company in Illinois and one of the largest in the nation. We provide dependable service to over 1.7 million commercial, industrial and residential customers throughout Northern Illinois.

We have an immediate opportunity for a programmer/analyst with 2+ years COBOL experience. Experience with any of the following would be a plus: UNISYS A series hardware; LINC; SDF; COMS; commonly used PC applications and software.

If you're looking to join a growing company with colleagues who will challenge you and management who will inspire you, envision your future with Northern Illinois Gas. Please send your resume in confidence to: **Management Recruiting Administrator, Northern Illinois Gas, P.O. Box 190, Aurora, IL 60507-0190**. Equal Opportunity Employer.

Northern Illinois Gas
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CPU

CPU, Inc.
An Information Technology Company

At CPU we know that our principal resource is our people. That is why we have committed ourselves to attracting and developing the most talented information systems professionals to work on challenging, leading edge assignments.

CPU consultants work in Open Systems/Client Server and other cutting edge technology, as well as traditional environments. CPU offers a diverse client base of Fortune 500 companies on the East Coast, Mid-West, and South-West.

CPU is actively and continually recruiting information systems professionals with at least two years of impressive industry experience.

We have a significant number of opportunities and challenges at several of our branches:

Rochester & Syracuse New York	- AIX/UNIX Systems Administrators Visual Basic Programmers - Oracle DBA/Developers - Powerbuilder Developer - SAP - Sybase C++, UNIX
Cleveland & Akron Ohio	INGRESS/UNIX (Project lead, Sys. Admin) Visual Basic Programmer - Progress - Adabas/Natural
Reston Virginia Washington DC	- Pyramid/LAN/WAN/UNIX (Cust. Support Eng.) DEC VAX/VMS/DCL (Technical Support)
Dallas & Houston Texas	- Visual Basic Programmer - UNIX, C, C++ Powerbuilder Developer
Tampa & Orlando Florida	IBM Assembler, AFP, MVS - MVS/ESA (Software Testing) Tandem/TAL/TACL - Oracle/Informix/DB2/Teradata DBA's - Powerbuilder/Sybase - Oracle Financials - Tech. Writer/Telepony Synon Certified Microfocus Cobol/PC Knowledge

For immediate consideration please fax or mail your resume to:

CPU, Inc.
Corporate Recruiting Center
345 Wood Cliff Drive
Fairport, New York 14450
Phone: 1-800-374-4278
Fax: 1-716-385-7918

PROJECT LEADER

STRATEGIC DATA SYSTEMS (SDS) is a recognized leader in providing quality software products to the property & casualty insurance industry. SDS has enjoyed a rapid growth rate over the past several years, particularly in the new installations and services area.

We have branches and opportunities throughout the U.S. We are presently looking for a seasoned MIS professional with the following qualifications:

- 6-8 years data processing experience
- Property & casualty insurance knowledge
- AS/400, UNIX, and COBOL experience
- Proven track record as a supervisor or team leader
- Desire to work with end users in a vendor/customer environment

SDS offers an excellent compensation and benefits package to go along with as career opportunities. Qualified candidates should send their resume along with salary requirements to:

Strategic Data Systems
Attention:
Human Resources Dept.
P.O. Box 819
Sheboygan, WI
53082-0819

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SYSTEMS ANALYST - To Analyze computer information systems requirements of clients and develop detailed project plan utilizing projects management workbench. Responsible for technical management of projects including hands on use of UNIX Open Systems, Object Oriented Methodology, Object Oriented C++, Client Server Tools, MS Windows, ORACLE. Design and development of computer applications and systems. Application design, development and testing of purchasing system and total compensation system using CLIPPER, CICS, C++, C, SQL, ORACLE RDBMS V7.0, POWER BUILDER 3.0, MS Windows. Implement project control information system using ORACLE RDBMS V7.0 for UNIX and Power Builder 3.0 for windows in client server environment. Req'd: Master's in Computer or Information Systems. 6 month exp. in the job offered or 6 month exp. in related occupation such as Research Assistant. Also req'd: graduate courses one each in: Object Oriented Software Design, Computer and Algorithms, Graphical User Interface Design, Programming and Language Design, Simulation and Modeling, Database Management Systems. Must have experience in MS Windows programming in Borland C++, DPL, ACCENTR and VAX/VMS. 40hrs/wk; $19.23/hr., 9:00 a.m. - 6:00 p.m., OT 5hrs. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202 Ref # 29994. Employer Paid Ad.

Staff Technical Writer: Will work independently and be responsible for completion of technical writing projects including design, problem solving, and development of scheduling for documentation including User Guides, Reference Guides, and Installation Guides for database management system tools and client/server tools that manage DBMS including Microsoft and Sybase SQL Server and Oracle. Will assist in the design, coding, compiling, and debugging Graphic User Interface online help systems using hypertext methodology for development software products using Blue's Information Presentation Facility tool including using BRIEF and IPF tag language. Will design and develop software demos using BRASP including documenting new standards for demos as well as testing and evaluating demo tools. Requires Bachelor's degree in Psychology or Journalism. Also requires two years experience in the job to be performed or two years experience as an Associate Technical Writer. If experience in related occupation, at least one year of experience must include using BRIEF programmer's text editor) and IPF tag language to write documentation for User Guides, Reference Guides, and Installation Guides for a relational database management system. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week at $32,480 per year salary. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resume to: Illinois Department of Employment Security, 401 S. State St., 3 South, Chicago, IL 60605, ATTN: Jean Woodson, Ref. #V-IL 11670-W. An Employer Paid Ad.

Director, Computer Training to plan, develop and administrate programs to apply education & training in the field of software development, systems analysis & design, & computer science, particularly for Mandarin Chinese speakers; Reqs. Master's in Education, 1 yr. exp. in job offered or 1 yr related exp. as a Teacher. The 1 yr. exp. must include designing & organizing curriculum programs & teaching Mandarin Chinese language speakers; Must have 1 univ. course in Micro-computer and must speak & read Mandarin Chinese; $30,143/yr., $15/hr. O.T., 40 hrs/wk 10a-7p. Send resume to 7310 Woodward Ave., Room 415, Detroit, MI 48202. Ref #10294 "Employer Paid Ad"

Sr. Prog. Analyst - plan, dev., test, document & support comp. sftwr. programs, applying knowledge of prog. techniques & comp. sys. Meet w/clients to eval. requests for new/modified programs, & help dev. estimates of feasibility, cost, time req'd. & compatibility w/current sys. Leads sys. implement. & tech. sftwr. support. Bach. or equiv. for ed. in comp. sci. field & 2 yrs. exp. Exp. must incl. ADABAS, PREDICT & COM-PLETE sftwr. prods., & Natural Prog. Lang. $45K. Job in Livonia, MI area. Resumes to CW-130603, Computerworld, Box 9171, Framingham, MA 01701-9171.

PROGRAMMER/ANALYSTS

OMNI Resources, Inc., the LARGEST Wisconsin based Information Systems Consulting Firm is seeking experienced IS Professionals for our clients in northern Illinois, Wisconsin and Minnesota. We offer an excellent compensation package, including 401(k) Plan, in house training, and continuing education. Opportunities exist for Programmer/Analysts with application experience in the following areas:

- LOTUS Notes, Microsoft ACCESS
- FOCUS, MAGIC, PROMS-BASIC
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- C/C++, Visual BASIC, ORACLE, SYBASE
- TELCO Accounting Systems, CPCS
- DB2, CICS, COBOL II, Mainframe COBOL
- NATURAL/ADABAS, CONSTRUCT
- AS/400, RPG5, ADI
- IMS, IMP Development, CA7/11

OMNI RESOURCES, INC.
330 East Kilbourn Avenue, Suite 707, Milwaukee, Wisconsin 53202
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Deloitte & Touche Management Consulting has built a strong reputation as business-oriented consultants who create and implement innovative solutions to address our clients' needs. With our vast array of clients, we offer variety, a high degree of visibility, recognition, and rewards. Our business partnerships now allow us to expand further into Client/Server Technology than ever before.

We are looking for financial and accounting systems specialists who are now or want to become skilled planners and implementors of client/server-based financial software solutions. Qualified candidates will possess in-depth knowledge of Accounting and Accounting Systems, a high comfort level with new technology, and either prior knowledge of or a strong interest in client/server technology. 3 years exceptional experience is required in the design or implementation of accounting systems; familiarity with financial software packages is a plus.

The ability to work effectively in a team environment with senior management, end users and IS personnel is vital. An undergraduate degree and flexibility for travel is required. In return, we offer outstanding career challenge and opportunities for professional growth.

Opportunities are available in most major cities; please indicate geographic preference. For consideration, we invite you to forward your resume to:

Director of Recruiting, Deloitte & Touche, 285 Peachtree Center Ave., Suite 2000, Dept. SAP, Atlanta, GA 30303.

Equal Opportunity Employer M/F/D/V

ATLANTA OPPORTUNITIES

Hayes Microcomputer Products, Inc. is a global company recognized as an innovative market leader in the computer communications industry with products selling in over 65 countries. We currently have opportunities at our Atlanta Corporate office for the following professionals:

PRINCIPAL & SENIOR ANALYSTS

Full-Time & Contract Opportunities

These individuals will support project development and business applications through program development enhancements and implementation. Requires a BSCS, or equivalent, and a minimum of 5+ years experience with ORACLE, to include Forms 3.0. Experience with Manufacturing or Financial applications and CASE experience a plus. (Dept. Code CM1720)

DATABASE ADMINISTRATORS

There are opportunities in the following areas for individuals with a Bachelor's degree in EE or Computer Science, or equivalent, and at least 6 years experience in relative software environments. Additionally, both positions require a working knowledge of desktop operating systems, specifically MS-DOS and Microsoft Windows.

- **ORACLE** - Requires experience in a UNIX operating system and ORACLE database environment, specifically ORACLE, ORACLE Dictionary and ORACLE Utilities and any UNIX system. Knowledge of SUN/OS is desired. (Dept. Code CM19970)
- **IDMS** - This CONTRACT position requires knowledge of and experience in IBM MVS operating systems and IDMS database environment. Experience in IDMS/DC, IDMS/CV, IDMS Data Dictionary and CA utilities (Developer toolkit, DBA toolkit, IDMS Query and ADS) is also required. Knowledge in IBM CICS, TSO and MVX utilities would be a plus. (Dept. Code CM19971)

SENIOR SYSTEMS ENGINEER

Provide system administration of Sun Workstations in a firmware/software development shop. Support source code management and software development tools. Bachelor's degree in CIS or equivalent, and a minimum 4 years experience with UNIX Administration (Sun OS preferred) are required. At least 2 years experience with source code control and C coding experience are strongly desired. (Dept. Code CM19801)

Hayes offers a competitive salary and comprehensive benefits package. For confidential consideration, please send resume with salary requirements to: **Hayes Microcomputer Products, Inc., Human Resources, PO Box 105203, Atlanta, GA 30348.** APPROPRIATE DEPARTMENT CODE MUST APPEAR ON ENVELOPE & ALL CORRESPONDENCE FOR CONSIDERATION. We will respond only to qualified candidates. An Equal Opportunity/Affirmative Action Employer M/F/D/V

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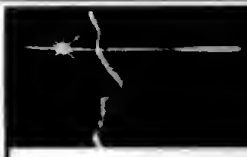
Management Information Systems Analyst - Productivity: Will develop and maintain Expert Systems Applications to improve productivity of underwriters by automating the loan approval decision process. Will build and maintain databases in ORACLE and SYBASE and extract data using SAS and SQL to monitor turnaround times of various loan processing functions. Will automate customer data manipulation and extraction by developing user interface applications using PARADOX, Windows programming in C, and C++. Will provide systems support for production of MIS reports and for data transfer in PC, mainframe, and Client/Server environments. Will evaluate and recommend purchase of software tools for MIS applications. Requires Master's degree in Management Information Systems or Industrial Engineering or Computer Science. Also requires one year experience in the job to be performed or one year experience as a Productivity Developer. Education to include completion of a research project in the development and implementation of an expert systems application in which either Ofisse III+ or PARADOX was used in conjunction with C language. Education to include six months as a Graduate Assistant or Research Assistant in which an individual developed a database management system in ORACLE and RBASE or SYBASE using SQL language as well as C language. If experience in related field, experience must include use of PARADOX or Ofisse III+ to develop iteration support models. Completion of the above-mentioned research project and database management system in a non-academic employment context is acceptable. Hours: 8:30 a.m. - 5:00 p.m. 40 hours per week at $3,000 per month salary. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resume to: Illinois Department of Employment Security, 401 S. State St. - 3 South, Chicago, IL 60605, ATTN: Len Bosna, Ref. #V-8, 11987-B. An Employer Paid Ad.



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Right now, we're looking for top-notch professionals **with at least 2-3 years of experience** who are passionate about solving client problems and have one or more of the following skills.

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CTG is one of the nation's largest integrated information technology services companies with a wide network of offices in North America and Europe. We offer challenging assignments with clients in every industry, including the majority of the Fortune 100, and an excellent salary and compensation package which includes 401(k) and much more.

Please send your resume to: **CTG, Dept. CD6CW0516, 12655 Olive Blvd., Suite 425, St. Louis, MO 63141. Or Fax with Dept. number to 314-469-1256.** EOE M/F/D/V.

CTG

data processing

IS PROFESSIONALS

IMMEDIATE and continuing positions available for IS Professionals with 3 years+ experience include:

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- AS400, RPG, JD Edwards Internals, manufacturing
- IMS, DB/DC, DB2, COBOL II, MVS JCL, systems analyst
- DB2, COBOL, CICS, JCL, MVS
- Natural/Adabas, DB2, SQL, client/server
- Powerbuilder, DB2, client/server
- Powerbuilder, Oracle or Sybase, UNIX
- C, Ingres, FMS, VAX
- COBOL, CICS, DL/1, IMS, DOS/VSE
- Windows, Powerbuilder or C or Visual Basic (design experience)
- IDMS, ADSO, TSO, Easytrieve+
- ABAP (SAP)

EAST TENNESSEE
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- DB2, CICS, Excelerator, Data Analyst
- COBOL, CICS, DB2, Cross Footer
- DB2, DBA (client server experience a plus)

NORTH FLORIDA
- COBOL, CICS, MVS, Shaw Installment Loans
- Sybase, Powerbuilder

We offer competitive salaries, full benefits, relocation and educational assistance to qualified candidates. EOE. Call or send resume to:

AMERICAN COMPUTER PROFESSIONALS
Dept. CW-89
140 Stoneridge Dr., Suite 380
Columbia, SC 29210
800-523-8227
FAX: 803-779-1888

DATABASE SPECIALISTS

As the leader in the dynamic telecommunications industry, Sprint is seeking seasoned professionals for its Data Management group. If you are an experienced database professional who thrives on change and likes the idea of contributing to the success of a technology driven company, you owe it to your career to explore the opportunities with Sprint. We are looking for a Database Specialist with:

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- in-depth knowledge of ADABAS, Natural and Predict is required
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- working knowledge of other Software AG products is preferred
- client server and object oriented development background is a strong plus
- Bachelor's degree in Computer Science, a related field, or equivalent work experience is required

The successful candidate will provide project leadership as well as technical support and coordination for developing, enhancing, monitoring, and maintaining complex or multi-platform DBMS-based information systems.

If you have what we are looking for, FAX your resume to: Sprint Information Services Staffing, Dept. CW516 at 214-791-8950; or mail to: 1300 E. Rochelle Blvd., Irving, TX 75039. We are proud to be an EEO/AA employer, M/F/D/V. Also, we maintain a smoke-free, drug-free workplace and perform pre-employment substance abuse screening.

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- MVS, COBOL II, CICS
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If you're interested in a company that places emphasis on the quality of its people by providing support and training for your career, Consultec, Inc is The Logical Choice. For confidential consideration, please send your resume to Consultec, Inc., 9040 Roswell Road, Suite 700 River Ridge, Atlanta, Georgia 30350. Please reference appropriate department. Equal Opportunity Employer

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St. Elizabeth Hospital, a progressive 474-bed facility located near the Texas Gulf Coast, is seeking a highly motivated self starter to manage, oversee and improve its recently installed information systems.

This position requires an individual with strong planning, organizational and leadership skills, Bachelor's Degree in Computer Science, Business, or related field, and at least five years experience managing information services in a mid to large health care environment. Master's degree preferred.

To apply, forward resume to: **Ann Houk, Human Resources Dept., St. Elizabeth Hospital, 2830 Calder, Beaumont, TX 77702.**

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Multimedia Programmer/Analyst: Will program, code, test, debug, design, develop and modify software to be used for production of Multimedia CD-Rom. Will select appropriate tools to develop programs for use in Windows-equipped PCs and Macintosh computers to enable software to incorporate, text, synthesize and sample audio, still images and motion-pictures in the form of digital video files. Will program and use Visual Basic, Visual C++ Windows, Windows Software development kit (Window SDK), Windows Application Interface (Window API), Windows Art, Quick Time for windows, Authorware Professional, using CD-Rom Creation and Digital Video Conversion technic. Requires M.S. degree in Computer Science. Also requires three months experience in the job to be performed or three months experience as a Multimedia Programmer. If experience in in related field, entire experience must include programming for Multimedia CD-Rom software using Visual Basic, Visual C++, Authorware, Window SDK, Window API, database programming, computer graphics programming, and image processing. Education to include completion of one course in each of the following: Computer Vision; Object-Oriented Programming; and, Advanced Database Programming. Hours: 8:30 a.m. - 5:00 p.m. 40 hours per week at $34,255.00 per year salary. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resume to: Illinois Department of Employment Security, 401 S. State St. - 3 South, Chicago, IL 60605, ATTN: Jean Woodson, Ref. #V-II, 11388-W. No Calls. An Employer Paid Ad.

SOFTWARE ENGINEER - Use data acquisition and object oriented programming techniques to develop an automotive production the real-time quality control system. Duties include: User Interface (C/C++) programming in the Microsoft Windows environment; real-time data acquisition programming using various communication protocols such as ISO-9141, Ford-SCP etc.; software system development quality assurance testing using Microsoft Test software package; system network development and performance testing; system database development and performance/integrity testing. Req'd: Master's in Computer or Electrical Engineering, 6 month exp. in the job offered or 6 month exp. in related occupation such as Research Assistant and/or Consultant. Exp. must include object oriented programming using UNIX, X-WINDOWS and C++. Also req'd grad. level courses one each in: Computer Graphics, Digital Image Analysis; Digital Picture Processing; Random Signal and notes; MS/Micro Computers and Application. 40 hrs/wk; 8:00 a.m. - 5:00 p.m.; $38,868/yr. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref.# 19894. Employer Paid Ad.

SOFTWARE ENGINEER - Develop information engineering and data modeling processes for corporate database management and activity reporting system. Analyze, design, program, test and implement entity relationship processes, online and batch programs. Implement and provide technical support and a "helpdesk" facility to users in three divisions, using IBM 3090 RISC/6000 with SYBASE, IMS DB/DC and APT, MFS, TSO/ISPF, COBOL, PL/1, VSAM software. Req'd: Bachelor Degree in Computer Science or Engineering; 2 yrs. exp in position offered or 2 yrs exp as Systems Analyst or Software Engineer; 2 yrs exp must include the following: a) work in IBM 3090 environment, b) application development utilizing APT, COBOL, PL/1, c) testing and documentation tools: SQL, MFS, IMS EXPERT. 40 hrs/wk, 8 am - 5 pm; $38,868/Yr. Send resume to 7310 Woodward Ave., Rm. 415, Detroit, MI 48202, Ref. No. 19894. Employer pd. ad.

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A strong working knowledge of at least one Relational DBMS and 3 to 5 years programming experience in "C" are required. Working experience with Tandem Non-Stop SQL and Pathway, telemarketing industry knowledge/experience, and a strong telecommunications background will be significant advantages. A college degree in computer science and formal training and/or practical experience in software engineering methods are strongly preferred.

Title and pay will be commensurate with years of experience and education. SITEL offers a competitive pay and benefits package, including a 401K plan; vacation, sick and holiday pay; medical and dental benefits, and basic life insurance.

In order to schedule an initial telephone interview (evening interviews are possible), please FAX or mail your resume along with a day-time phone number to:

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FAX # (402) 571-8613
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Midwest

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An Information Technology Company

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At CPU we know that our principal resource is our people. That is why we have committed ourselves to attracting and developing the most talented information systems professionals to work on challenging, leading edge assignments.

CPU consultants work in Open Systems/Client Server and other cutting edge technology, as well as traditional environments. CPU offers a diverse client base of Fortune 500 companies on the East Coast, Mid West, and South-West.

CPU is actively and continually recruiting information systems professionals with at least two years of impressive industry experience.

We have a significant number of opportunities and challenges at several of our branches:

Rochester & Syracuse, New York	- AIX/UNIX Systems Administrators - Visual Basic Programmers - Oracle DBA/Developers - Powerbuilder Developer - SAP Sybase C++, UNIX
Cleveland & Akron Ohio	INGRESS/UNIX (Project lead, Sys. Admin) Visual Basic Programmer Progress Adabas/Natural
Reston, Virginia/ Washington DC	Pyramid/LAN/WAN/UNIX (Cust. Support Eng.) DEC VAX/VMS/DCL (Technical Support)
Dallas & Houston Texas	Visual Basic Programmer UNIX, C/C++ Powerbuilder Developer
Tampa & Orlando Florida	IBM Assembler, AFP, MVS MVS/ESA (Software Testing) Tandem/TAL/TACL Oracle/Informix/DB2/Teradata DBA's Powerbuilder/Sybase Oracle Financials Tech. Writer/Telepony Synon Certified Microfocus Cobol/PC Knowledge

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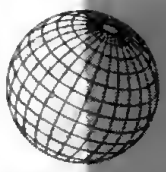

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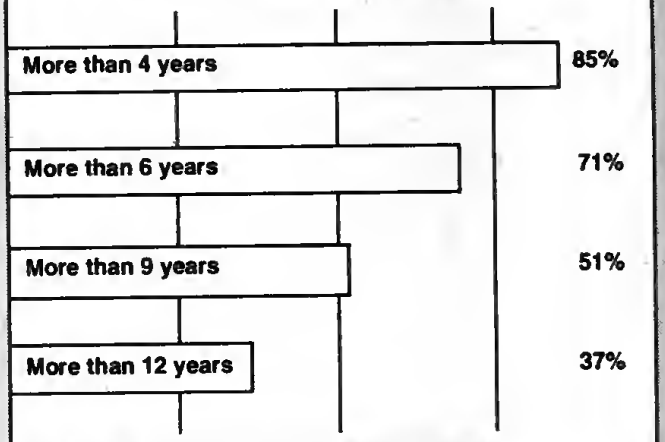

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Goodbye Minis

By Alan Radding

Anyone pursuing a career in minicomputers should develop alternative skills. Although some vendors still seem promising for the short term, the traditional minicomputer as we know it represents a dead end.

Traditional minis — those large, proprietary systems — "are on their way out. The time for denial is past," says Richard Buchanan, senior analyst of the computing strategy service at Forrester Research, Inc. in Cambridge, Mass.

Vendors themselves are giving up on the minicomputer (see related story), but user companies have been slower to jump ship because their systems still serve their business needs.

"Sixty percent of the installed AS/400 base is sticking with it for now," Buchanan concedes, but the future belongs to open client/server computing, not proprietary host-based systems. In fact, IBM's latest announcements concerning re-engineering the AS/400 focus squarely on advanced client/server computing and openness.

In the short term, the AS/400 continues to thrive and, unlike other minicomputers, has a strong demand for experienced people. "All you see are ads for AS/400 programmers," says Paul Dravillas, associate professor at Moraine Valley Community College in Palos Hill, Ill.

> If there is going to be any career path in minicomputers, it will be with the AS/400. Dick Grenham, an independent AS/400 consultant in Framingham, Mass., is seeing demand for coding and performance tuning. Recently, he has fielded requests for help with AS/400 communications. "A lot of companies are trying to get started with communications for their AS/400. They are trying to connect it with LANs or to multiple AS/400s."

In response to that demand, Dravillas helped organize and now teaches a for-credit AS/400 certificate program that attracts several hundred students a year. Eighty-five percent of its graduates get jobs working with the AS/400.

Bunker Hill Community College in Boston provides courses in AS/400 basics, RPG, advanced RPG and the AS/400 database.

"There aren't enough programmers and programmer/analysts around for the AS/400," notes Dick Grenham, an AS/400 consultant and part-time instructor at Bunker Hill. "I know three or four companies that are looking for people right now."

An independent consultant in Framingham, Mass., Grenham, a former IBM employee, says he's in high demand for his services, mainly coding and performance-tuning the AS/400. In response to a new interest in AS/400 communications, he organized Bunker Hill's seminar on TCP/IP for the AS/400.

For people with basic computer skills, learning the AS/400 isn't difficult. The machine supports RPG/400, Cobol and CL as its programming languages. RPG/400, which is very similar to the RPG used on the System/38, is the primary programming language. "You don't have to be a rocket scientist to program an AS/400 using RPG," Dravillas adds.

AS/400 programmers who want to enjoy a long and healthy career with the platform and to be prepared for whatever comes afterward should enhance their basic AS/400 RPG skills with SQL database experience, knowledge of fourth-generation languages, TCP/IP communications and even object-oriented programming, Buchanan advises.

This same advice applies even more to other minicomputer professionals: Acquire the open systems, client/server skill set as quickly as possible.

By itself, a traditional minicomputer career has no future. ■

Radding is a free-lance writer in Newton, Mass.

Going, going, gone

Whether they admit it or not, the major minicomputer vendors have abandoned their minicomputers or are in the process of doing so.

Data General Corp.: DG made the commitment to Unix several years ago with its Aviion line, which has enjoyed modest success. Its MV minicomputer lines make up 14% of its revenue, down from 29% a year ago.

Digital Equipment Corp.: Despite efforts to reposition the VAX/VMS line, Digital's future lies with Alpha/Unix. VAX/VMS professionals would be wise to follow Digital's lead and add Unix/RISC, client/server computing to their skills.

Prime Computer Co.: The company still markets its MPE-based minicomputers, but its main efforts revolve around its Unix-based, multiprocessor RISC servers.

IBM: The AS/400 remains the last thriving minicomputer platform, and the core of its installed base will be slow to move away. However, IBM is evolving the AS/400 into a high-powered RISC machine with a focus on advanced client/server capabilities and openness.

Wang Laboratories, Inc.: The resurrected Wang is not focusing on minicomputers but imaging, document management, data access and other hot software categories.

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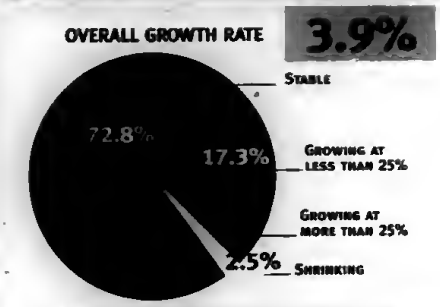

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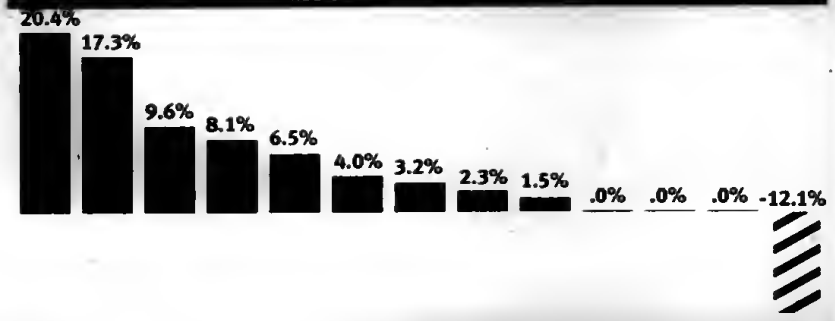

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IS THERE HELP FOR ON-LINE HELP?

By Bronwyn Fryer

Whether you call them wizards, coaches or tutors, the newest on-line Help functions built into the most popular productivity software packages are, by just about anyone's standards, a vast improvement over the stiff, badly written and poorly integrated Help functions of the past.

Mainstream spreadsheet and word processing applications such as Microsoft Corp.'s Word for Windows 6.0 perform tasks automatically, such as formatting a letter. Others, such as WordPerfect Corp.'s WordPerfect 6.0 for DOS, incorporate step-by-step teachers that walk users through complex processes. But despite these improvements, Help functions still have a long way to go.

On-line coaches are rapidly becoming a necessity among competing off-the-shelf applications, in part because most users prefer them to poring through manuals. "On a scale of one to 10, good on-line Help is absolutely a 10 in importance," says Chris LeTocq, director of software research at Computer Intelligence/InfoCorp in Santa Clara, Calif.

Part of the reason why coaches have been greeted with comparative enthusiasm is because past incarnations of on-line documentation have been nothing short of dreadful. A March 1994 Dataquest Worldwide Services Group study revealed that users find help in on-line or manual documentation only 50% of the time.

And although users rated index functions 2.5% more important than any other aspect of on-line or manual documentation, "indexes are poorly done since publishers tend to slap them together right before shipping the product," notes Bob Johnson, a senior industry analyst at Dataquest.

Johnson adds that the vast majority of on-line Help that he has seen is definition-oriented and cannot help users. "Instead of telling you how to use a feature, such as a database join, they tell you what the feature does. That doesn't help people who are trying to be self-supporting," he says.

While wizards, coaches and other built-in tutorials certainly improve matters, on-line Help functions still do comparatively little to ease the burden placed on corporate help desks or individual users. "So-called 'wizards' are good because they will give you examples of how tasks are done, but they are still irrelevant to most real-world work," Johnson says.

On-line Help will only be useful, he notes, when vendors fit examples to the user's context, rather than assume a given knowledge or skill level.

Corporate help desks can fill their own users' needs for more relevant Help functions in in-house applications with products such as Lotus Development Corp.'s ScreenCam.

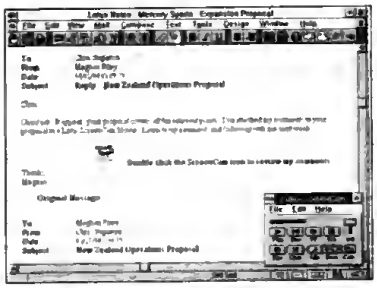
ScreenCam is a screen-recording utility that lets users record tasks in the context of their office environment, then attach the recording as an object in electronic mail or other applications and share "how-to" processes with others.

Still, beyond using the standard Help engine in the Windows Help system, there are no standards for developing better, more relevant Help systems, analysts say. Therefore, it is incumbent upon vendors to develop more creative, intelligent ways of presenting documentation on-screen.

Until vendors of off-the-shelf packages provide better on-line support, the storm clouds will continue to gather, Johnson predicts. Companies, increasingly sensitive to paying for costly help desks or outsourced support, are also getting angrier about the poor state of Help functions.

"The issue facing vendors is no longer how long they leave users on hold," Johnson argues. "It's rapidly focusing on whether they force their users to call in the first place." •

Fryer is a free-lance writer in Menlo Park, Calif.



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42% spend five to 10 minutes struggling with a feature, searching through manuals or getting lost in on-line Help menus before calling for assistance.

35% spend 15 minutes to an hour on the same thing.

Source: Dataquest Worldwide Services Group, Framingham, Mass.

REAL HELP FOR REAL PEOPLE

Until vendors get their acts together, it's up to information systems managers to select off-the-shelf packages that provide decent on-line Help. When choosing a package, look for the following:

- **Error messages with Help buttons.** At the very minimum, there should be a reference for every command, never an error message without a Help button. The Help system should also attempt to provide workarounds rather than just definitions that leave users hanging.
- **Business examples.** Look for packages that use plenty of good business-oriented examples written in plain, nontechnical language. Definitions should also be thoroughly cross-referenced.
- **Detailed indexes.** See how long and detailed the index is and whether it is written with an eye for making users more self-supporting.

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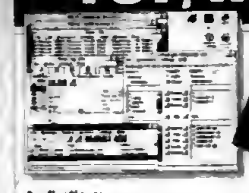

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Friday Stock Ticker

Gainers

Percent

Micro Focus	29.0
Data Switch Corp.	18.8
Compuware Inc	13.6
IPL Systems Inc.	13.5
Microcom Inc.	11.9
American Meant Systems(H)	11.0
General Datacomm Inds.	9.4
Brock Control Systems Inc.	8.8

Dollar

Microsoft Corp.	5.50
Micro Focus	3.63
Hewlett Packard Co.	2.75
Parametric Technology	2.50
American Meant Systems(H)	2.25
Brock Control Systems Inc.	1.75
BGS Systems Inc.	1.75
Computer Sciences(H)	1.63

Losers

Percent

Progress Software Corp.	-29.6
Cisco Systems Inc.	-24.1
Centigram Communications	-22.5
System Software Assoc.	-20.6
Data Race Inc.(L)	-18.5
Komag Inc.	-18.5
AST Research Inc.	-17.8
Convex Computer	-12.8

Dollar

Progress Software Corp.	-12.75
Wellfleet Communications	-10.25
Cabletron Systems	-8.00
Cisco Systems Inc.	-7.38
Chipcom Corp	-7.00
Centigram Communications	-5.75
Newbridge Networks Corp	-5.13
Powersoft	-4.75

Hubs: Slip-sliding away

The past two months have not been kind to hub vendors, which not so long ago ran with the jet set on Wall Street.

Chipcom Corp. (CHPM) was last week's victim, falling more than three notches on Wednesday alone. However, the Southboro, Mass., internetworking company's stock had already retreated significantly from its highest mark after a healthy run-up in 1993. Chipcom's choppy flight reflected recent turbulence suffered by hub makers including market leaders **SynOptics Communications, Inc.** (SNPX) and **Cabletron Systems, Inc.** (CS).

Analysts attributed the slowdown in hub stocks to the decline of the stock market at large; only a few companies, most notably SynOptics, have suffered revenue shortfalls.

"You're looking at a stock market phenomenon, not a hub market phenomenon," said Eric Buck, vice president at Donaldson, Lufkin & Jenrette Securities Corp.

"Chipcom had been commanding a premium even relative to the other hub vendors, and a correction is always hardest on the companies trading at high multiples," said James Wade, an analyst at Alex. Brown & Sons, Inc. He did note, however, that Chipcom reportedly lost out on a couple of big sales deals recently.

In spite of the recent beatings, analysts said they are at least modestly bullish on hub stocks. "The opportunities are still out there. Of all the LAN segments, hub vendors are in the best position," Buck said.

Wade said there are two ways to look for profits in hub stocks at the moment. "You can bet on a SynOptics rebound — they're trading at a low multiple of 1995 earnings — but we're a little skeptical of what the 1995 calendar earnings will be. Or you can pay a little extra for Cabletron, which is very consistent in meeting their numbers," Wade said.

—Derek Slater

Your slip is showing

The lightning growth of the hub market has not kept hub vendors from sliding off their 52-week highs

Company	52-week high	Price 5/11
Asante	14	7
Cabletron	132.50	98
Chipcom	60.25	39.50
Lannet	18.25	8.25
LanOptics	22.25	7.88
NetWorth	17	11.25
Optical Data Systems	18.25	16.68
SynOptics	42.75	18.50

Exch	52-Week Range			May 13 1994 Close	Net Chng	Wk Pct Chng
Communications and Network Services						OFF 3.28%
OTC	43.75	19.63	J COM Corp	55.25	-3.00	-5.2
NYS	45.50	35.50	AMERITECH Corp.	38.75	0.75	0.7
NYS	65.00	49.50	AT&T	53.00	1.25	2.4
OTC	26.50	12.50	Banyan Systems Inc	15.13	2.13	-12.3
NYS	65.13	49.00	Bell Atlantic Corp.	51.00	0.50	1.0
NYS	63.88	50.63	BellSouth Corp.	57.75	0.75	-1.3
NYS	21.50	4.38	Bolt, Beranek & Newman	10.88	1.50	12.1
OTC	15.75	5.50	Brooktrout Technology	12.50	-0.50	3.8
NYS	132.50	87.50	Cabletron Systems	92.25	-8.00	-8.0
OTC	43.00	16.75	Centigram Communications	19.75	-5.75	-22.5
OTC	60.25	34.75	Chipcom Corp	39.25	-7.00	15.1
OTC	40.75	20.13	Cisco Systems Inc.	23.25	-7.38	24.1
OTC	18.38	9.25	Compression Labs Inc.	13.13	0.88	7.1
OTC	12.38	5.00	Computer Network Tech.	2.75	-0.13	3.9
OTC	56.00	8.50	Cross Comm	30.63	0.13	1.2
OTC	3.50	1.50	Data Switch Corp	2.38	0.38	18.8
OTC	73.13	36.75	DSC Communications	58.13	1.50	2.5
OTC	1.50	0.81	Gandalf Technologies Inc	1.00	0.02	1.6
NYS	17.63	8.00	General Datacomm Inds.	13.13	1.13	9.4
NYS	39.88	29.50	GTE Corp	31.88	0.88	2.8
NYS	95.37	73.88	ITT Corp	82.25	4.63	-5.3
OTC	29.88	21.38	MCI Communications Corp	22.50	-0.25	-1.1
OTC	7.75	1.50	Microcom Inc.	5.88	0.63	11.9
OTC	47.00	23.00	NetManage Inc.	38.00	0.00	0.0
OTC	7.25	3.50	Netrix Corp	6.00	-0.75	4.0
OTC	11.75	4.75	Network Computing Devices	5.75	1.00	14.8
NYS	13.13	6.63	Networks Equipment Tech	7.13	0.00	0.0
OTC	23.38	8.88	Network General	16.75	-0.75	-4.3
OTC	10.13	6.38	Network Systems Corp.	6.44	-0.19	2.8
OTC	73.88	32.38	Newbridge Networks Corp	38.13	-5.13	-10.0
NYS	38.63	31.38	Northern Telecom Ltd	30.13	0.25	0.8
OTC	33.50	15.38	Novell Inc.	17.88	-0.63	3.4
NYS	48.88	33.25	Nynex Corp.	36.13	-0.75	-2.0
OTC	30.00	19.00	Octel Communications Corp.	19.25	-1.00	-4.9
OTC	19.25	9.00	Optical Data Systems Inc.	16.25	0.13	0.8
OTC	7.50	3.75	Pencil Data Comm Networks	3.63	0.13	2.3
OTC	27.25	10.00	Picturetel Corp.	12.75	-0.63	-4.7
OTC	8.75	3.63	Proteon Inc	5.75	0.13	2.2
OTC	14.38	7.00	Racotek Inc.	8.13	0.13	1.6
NYS	36.88	24.88	Scientific Atlanta Inc.	33.63	0.13	0.4
NYS	47.00	34.75	Southwestern Bell Corp	39.25	-0.50	-1.3
NYS	40.25	29.63	Sprint Corp	30.00	0.00	0.0
OTC	26.75	13.75	Standard Microsystems Corp.	16.25	1.25	-7.1
OTC	23.75	10.75	Stratacom Inc	22.63	0.00	0.0
OTC	42.75	18.50	Synoptics Communications	18.75	1.50	-7.4
OTC	15.25	2.88	Telebit Corp	8.50	1.63	16.0
OTC	46.00	20.25	US Robotics	30.50	1.50	-4.9
NYS	50.75	38.50	U S West Inc.	39.00	-0.63	-1.6
OTC	67.75	38.75	Wellfleet Communications	65.25	-10.25	-13.6
OTC	28.25	10.25	Xircom	17.75	2.25	14.3
OTC	30.00	13.75	Xylan Inc.	16.00	0.00	0.0
PCs and Workstations						OFF 5.55%
OTC	7.50	2.63	Advanced Logic Research	5.06	-0.19	3.8
OTC	59.13	22.00	Apple Computer Inc.	30.25	-1.75	-4.0
OTC	33.00	13.25	AST Research Inc	15.00	-3.25	-17.9
NYS	133.50	43.13	Compaq Computer Corp.	103.75	-4.38	-4.0
OTC	34.38	13.50	Dell Computer Corp	24.38	-1.50	5.8
OTC	25.00	12.88	Gateway 2000 Inc. (L)	12.88	-2.75	-17.6
NYS	93.63	64.38	Hewlett Packard Co	79.75	2.75	3.6
NYS	26.88	16.00	Silicon Graphics	23.13	-1.13	4.6
OTC	12.63	20.88	Sun Microsystems Inc.	21.13	-0.88	-4.0
NYS	50.75	28.13	Tandy Corp	36.13	0.50	1.4
OTC	5.13	2.50	Zeos International Ltd	2.88	0.13	4.7
Large Systems						OFF 3.44%
ASE	7.88	4.38	Amdahl Corp	7.00	0.00	0.0
NYS	7.63	3.63	Convex Computer	4.63	-1.00	-17.8
OTC	4.50	0.50	Cray Computer	1.50	-0.13	-7.7
NYS	33.75	20.13	Cray Research Inc. (L)	20.25	-0.25	-1.2
NYS	11.88	6.63	Data General Corp	7.75	0.13	1.6
NYS	68.75	18.25	Digital Equipment Corp	21.25	-0.88	-4.0
NYS	52.25	33.88	Harris Corp	42.63	-3.75	-2.8
NYS	60.00	40.63	IBM	57.63	1.38	2.4
OTC	25.75	2.75	Kendall Square Research	3.25	0.00	0.0
OTC	18.75	8.25	Netframe	10.50	-0.75	-6.7
OTC	26.00	6.25	Parallan Computer	6.88	0.38	5.8
OTC	23.25	6.88	Pyramid Technology	7.50	-0.25	-3.2
OTC	23.25	11.13	Sequent Computer Sys.	13.00	-0.75	-1.9
OTC	16.84	1.75	Sequoia Systems Inc.	4.00	-0.75	-15.8
NYS	41.25	20.25	Stratus Computer Inc	27.13	-0.25	-0.9
NYS	16.38	8.50	Tandem Computers Inc.	13.00	0.00	0.0
OTC	30.00	10.75	Tricord Systems	10.88	-0.88	-7.8
NYS	16.50	9.88	Unisys Corp	10.25	-0.25	2.4
Software						OFF 3.46%
OTC	37.00	16.75	Acctg Systems Inc.	24.00	-1.88	7.2
OTC	34.50	13.50	Adobe Corp	26.75	-1.75	-6.1
OTC	8.88	5.00	American Software Inc.	5.25	-0.13	-2.3
OTC	15.75	6.75	Ask Computer Systems	9.38	-0.13	-1.3
OTC	91.75	37.00	Autodesk Inc.	51.50	1.38	2.6
OTC	4.50	2.06	Bachman Info Systems	2.13	-0.13	-5.6
OTC	35.00	20.50	BGS Systems Inc.	22.50	1.75	8.6
OTC	71.00	43.00	BMC Software Inc	54.75	1.25	2.3
OTC	38.25	28.38	Boole & Babbage	37.75	0.38	1.4
OTC	27.00	10.75	Borland Int'l. Inc.	10.75	-1.50	-12.2
OTC	35.00	9.50	Brock Control Systems Inc.	21.75	1.75	8.8
OTC	4.63	2.75	CE Software	3.00	-0.13	-4.0
ASE	30.38	14.91	Cheyenne Software Inc.	20.63	-1.25	-5.7
OTC	14.25	8.25	Cognos Inc	11.13	-0.75	-6.5
NYS	44.88	26.50	Computer Associates	50.50	-1.63	5.1
NYS	5.38	2.13	Computervision Corp	3.75	-0.13	3.3
OTC	42.25	21.00	Compuware Corp	42.75	-1.50	-3.4
OTC	12.75	5.75	Comshare Inc.	12.50	1.50	13.0
OTC	23.38	7.31	Corel Corp (H)	21.88	-1.00	-4.4
OTC	7.75	3.38	Easel Corp.	4.25	-0.13	2.9
OTC	29.25	10.75	Fileret Corp	26.00	1.00	-4.0
OTC	25.00	5.38	4th Dimension (L)	5.38	-0.75	-12.2
OTC	12.50	5.25	Frame Technology	11.94	-0.06	-0.5
OTC	13.00	7.00	Geoquery Software	7.50	0.00	0.0
OTC	33.75	12.00	Gupta	14.25	-0.13	-0.9
OTC	13.00	7.25	Hogan Systems Inc.	9.63	0.75	8.5
OTC	29.50	13.00	IMRS	20.75	-0.25	-1.2
OTC	44.25	12.50	Information Resources	14.88	-1.38	-8.5
OTC	27.25	15.00	Informix Corp	15.00	-2.00	11.8
OTC	12.38	8.50	Intergraph Corp.	9.44	0.00	0.0
OTC	9.25	4.88	Interleaf Inc.	6.25	-0.38	-5.7
OTC	15.50	4.75	Intersolv Inc.	10.75	-0.81	-7.0
OTC	50.00	25.75	Intuit Inc	30.75	0.50	1.7
OTC	18.75	6.50	Knowledgeware Inc.	10.25	-0.38	-3.5
OTC	37.00	15.50	Lotus Corp	20.00	-1.13	3.9
OTC	86.50	38.25	Lotus Development	59.25	-2.50	-4.1
OTC	19.50	11.50	Magic Software Enterprises	11.50	1.13	9.0
OTC	18.50	6.25	Manugistics Group Inc.	6.75	0.00	0.0
OTC	10.50	1.81	MAYnSoft (L)	1.88	0.13	0.1
OTC	13.25	4.50	McAfee Associates	8.50	0.25	3.0
OTC	37.75	8.38	Mentor Graphics	33.25	0.38	1.2
OTC	36.00	11.50	Micro Focus	16.13	3.63	29.0
OTC	11.63	4.88	Microsoft Inc.	5.25	1.13	17.6
OTC	98.00	70.38	Microsoft Corp	96.63	5.50	6.0
OTC	37.75	19.50	Oracle Corp	31.88	1.25	4.2
OTC	44.75	23.75	Parametric Technology	31.75	2.50	8.5
OTC	26.50	16.50	Park Place Systems Inc. (L)	16.50	0.00	-15.4
OTC	41.38	26.00	Peoplesoft	27.63	-0.38	-1.3
OTC	6.25	3.50	Phoenix Technologies	5.13	-0.13	-2.4
OTC	69.50	22.00	Powersoft	44.50	-4.75	-9.6
OTC	59.75	3.50	Platinum Software	5.63	1.00	15.1
OTC	16.75	7.25	Platinum Technology	13.13	-0.06	-0.5
OTC	60.25	12.25	Progress Software Corp	17.00	-12.75	-39.6
OTC	3.81	1.94	Quarterdeck Office Sys.	2.75	-0.06	2.2
OTC	12.00	13.75	Rainbow Technologies Inc. (L)	13.75	-0.75	-5.2
OTC	13.38	4.00	Rastrops	5.00	-0.88	14.9
OTC	14.50	3.75	Ross Systems	5.25	0.00	0.0
OTC	28.75	4.00	Sapiens Intl. Corp. N.V. (L)	4.63	-0.25	-5.1
OTC	11.00	9.75	Software International Inc.	11.38	-0.50	-4.2
OTC	8.63	6.50	Software Publishing Corp	6.50	-0.38	7.7
OTC	17.25	7.75	Software Toolworks Inc.	14.50	-0.13	-0.9
OTC	13.75	6.25	State of the Art	7.75	0.25	3.0
NYS	35.63	17.63	Sterling Software Inc.	30.63	-0.63	2.0
OTC	21.63	9.88	Struct. Dynamics Research	9.88	-1.00	9.7
OTC	34.00	25.75	Symantec Inc	30.50	1.38	2.7
OTC	20.50	10.88	Symantec Corp	13.00	-2.25	14.8
OTC	52.75	13.75	SynOpsis	36.75	-0.75	2.0
OTC	24.25	12.00	System Software Assoc.	12.38	-3.25	-20.6
OTC	6.75	2.88	Tensilica Corp	3.94	-0.31	-7.8
OTC	36.00	15.25	Viewlogic Systems	21.00	-1.75	7.7
OTC	13.75	5.50	Walker Interactive Systems	7.25	-0.75	9.4
OTC	60.00	17.25	Wall Data Inc	20.63	-2.63	-7.6
Semiconductors						OFF 1.88%
NYS	32.75	18.75	Advanced Micro Devices	23.63	0.75	3.1
NYS	31.13	18.00	Analog Devices Inc.	20.50	-0.61	-2.9
OTC	26.88	10.88	Atmel Corp	24.88	0.75	3.1
OTC	7.50	5.25	Chips and Technologies	4.63	-0.26	-5.1
OTC	44.63	15.75	Cirrus Logic	33.25	2.50	-7.0
NYS	19.88	11.25	Cypress Semiconductor Corp.	14.88	-1.50	-8.2
NYS	20.00	13.00	Dallas Semiconductor	17.38	-1.13	-6.1
OTC	27.25	10.75	Integrated Silicon Systems	21.50	0.50	-1.0
OTC	74.50	48.75	Intel Corp	59.50	-0.50	0.8
NYS	23.38	11.75	LSI Logic Corp	20.13	1.50	-6.9
OTC	26.75	12.25	Lattice Semiconductor	15.25	-0.75	-4.7
NYS	39.01	9.50	Micron Technology	32.38	1.63	-4.8
NYS	54.00	36.88	Motorola Inc.	44.63	1.38	3.2
NYS	25.00	14.13	National Semiconductor	18.88	-1.13	-5.6
OTC	10.13	8.50	Sierra Semiconductor	8.00	0.00	0.0
NYS	89.50	55.75	Texas Instruments	72.13	-2.63	3.5
OTC	18.88	7.38	VLSI Technology	10.38	0.00	0.0
OTC	14.38	8.63	Xilinx	9.50	0.00	0.0
ASE	20.38	3.63	Western Digital Corp.	13.38	2.63	36.4
OTC	59.75	29.75	Zilog	49.00	-3.00	-5.8
OTC	90.75	22.00	Zilog Inc.	34.50	-1.63	-4.5
Peripherals and Subsystems						OFF 0.49%
OTC	30.50	10.50	American Power Conversion	19.50	1.50	11.0
OTC	24.75	17.13	Banctec Inc.	21.50	-1.00	-4.6
OTC	6.00	3.25	Cambex Corp (L)	3.38	0.00	0.0
ASE	8.25	2.63	Comptronics Corp.	3.50	0.13	3.7
NYS	20.50	9.00	Conner Peripherals	13.25	2.00	-13.1
OTC	30.25	17.50	Creative Technologies Inc.	25.25	1.25	5.2
OTC	15.00	5.50	Data Race Inc. (L)	5.50	3.25	18.5
ASE	13.63	4.13	Datapoint Corp	6.88	0.19	4.0
NYS	23.00	7.50	EMC Corp	15.25	2.00	15.9
OTC	8.25	3.13	Emulex Corp	5.13	0.13	2.5
OTC	21.00	14.25	Evans & Sutherland	17.00	-0.38	2.2
OTC	22.50	7.50	Exabyte	15.00	-3.13	17.2
OTC	34.00	7.50	Intelligent Info. Systems	7.50	-0.75	9.2
OTC	5.13	2.00	Iomega Corp	2.25	0.00	-0.0
OTC	9.75	5.75	IPL Systems Inc.	7.38	0.88	13.5
OTC	28.50	13.75	Komag Inc.	19.75	-4.25	-18.5
OTC	8.63	4.38	Maxton Corp	6.25	-0.06	-1.0
OTC	6.75	4.88	Micropolis Corp.	6.63	0.00	0.0
OTC	22.50	10.00	Pinnacle Micro Inc.	14.75	-0.25	1.7
OTC	9.75	6.25	Printronix Inc. (H)	9.50	0.50	5.6
NYS	16.38	7.38	QMS Inc.	7.63	-0.25	3.2
OTC	20.25	9.38	Quantum Corp	14.00	-3.00	-17.6
OTC	9.13	3.13	Radius Inc.	5.88	-0.88	-13.0
NYS	17.75	9.38	Reconditioned Information	9.38	-0.50	0.3
OTC	6.88	3.63	Seagate Technology	5.88	-0.25	-4.1
OTC	28.75	16.38	Seagate Technology	22.50	-2.88	-13.3
NYS	45.00	23.75	Storage Technology	28.00	0.13	0.4
NYS	33.38	21.38	Tandberg Inc.	28.50	0.38	1.3
NYS	104.88	69.88	Xerox Corp	98.50	-1.00	-1.0
Services						OFF 2.81%
OTC	22.75	14.88	American Meant Systems (H)	22.75	2.25	11.0
NYS	4.75	2.38	Analogic Inc.	3.50	-0.63	-15.2
OTC	23.50	14.50	Analysts Int'l.	16.75	0.75	4.7
NYS	56.88	46.88	Auto Data Processing	50.13	-0.25	-0.5
OTC	10.25	6.50	Cambridge Tech. Partners	14.00	-0.38	-2.9
NYS	24.88	13.00	Cayman Corp (H)	23.38	-0.13	-0.5
NYS	24.25	13.88	Cognizant Inc.	18.13	-1.13	5.8
OTC	12.50	4.84	Computer Horizons	10.63	0.63	7.2
NYS	42.38	23.88	Computer Sciences (H)	41.88	1.63	6.0
NYS	8.88	6.00	Computer Task Group (H)	9.25	-0.38	4.1
NYS	35.00	15.63	CompUSA Inc. (L)	15.62	2.00	-11.1
OTC	13.50	2.75	Control Data Systems Inc.	9.88	0.25	2.6
OTC	11.00	6.63	Edmund Discount Software	7.88	-0.50	-6.0
NYS	36.88	26.00	General Motors E (EDS)	33.00	-1.13	3.3
OTC	22.75	11.00	Macadam Corp	11.75	-0.25	2.2
OTC	28.00	12.25	Intelligent Electronics	19.13	-0.88	-4.4
OTC	22.50	10.38	Mrowtel	15.00	1.63	-9.1
OTC	22.38	6.50	Microdata Inc.	21.75	3.50	13.9
OTC	40.50	21.84	Paychex	36.75	-1.00	2.0
NYS	41.63	21.61	Policy Management Sys	30.25	1.25	4.3
NYS	24.88	17.88	Reynolds and Reynolds	20.00	-1.75	-8.6
OTC	28.50	15.13	SEI Corp	20.25	-1.00	-4.7
OTC	29.38	17.50	Shared Medical Systems	23.75	-0.50	-2.1
OTC	12.63	5.63	SHL Systemhouse	8.88	0.00	0.0
OTC	30.75	12.50	Software Spectrum Inc. (L)	13.75	0.25	1.9
OTC	42.75	28.00	Sunguard Data Systems	38.00	-1.00	-4.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Wysiwyg

Great Names

Jennifer Keys
President, Swift Digits, a data-entry company in Lake Los Angeles, Calif.

In Your Face for Windows
Personalized photo screen saver from Kilsoft in Souderton, Pa.

Here's a new one for computer haters: a service from phone company IDT in which the company sets up an E-mail address for you, then takes your E-mail messages and sends them to your fax machine. One of the service's biggest proponents is IDT's founder, Howard Jonas, who personally refuses to use a computer. "This is great! Now I can read my mail the old-fashioned way – on paper and not on some damn computer screen. I consider myself the protector of America's newest minority group – the computer illiterate."

The service costs $5 a month regardless of the number of messages received.

A Feb. 1 Wall Street Journal article reported that scientists have taken the first steps toward creating microchips that use living brain cells.

Here are our Top 5 reasons for using these chips:

5. It adds crunch to a sweetbreads sandwich.
4. Now you'll be able to say: This is your brain. This is your brain on microchips.
3. So Bill Gates' brain can live forever.
2. So Joey Buttafuoco's brain can live forever.
1. To replace certain politician's brain cells with living brain cells.

Thought for the day

A recent survey reports that 40% of people work more than 40 hours a week, and 20% work more than 50 hours a week. Programmers were too busy to answer the survey.

Source: *The High Tech Joke Book* (Oak Ridge Public Relations, Inc.)

Illustration & Design by Dave Marshall; Compiled by Lory Dix

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Inside Lines

Sign on the dotted line . . .

X/Open is expected to issue a statement this week confirming that Novell has finalized the transfer of its Unix trademark to X/Open. The process, which began last October [CW, Oct. 18, 1993], was drawn out as the two firms resolved legalities related to Unix System Labs' extensive worldwide trademarks. Novell acquired Unix from Unix System Labs last year.

Messages in a bottleneck

The Message Oriented MiddleWare (MOM) consortium, which tried — and failed — to form last year, is about to try to resurrect itself with a membership drive directed at users and independent software vendors as well as middleware vendors, according to Mark Teflian, president of Covia Technologies. The idea of the original group, which included IBM, Covia, PeerLogic and Digital, was that a united effort was needed to help users translate MOM technology into real benefits.

Gupta to upgrade SQL Windows

Gupta plans to announce an upgrade to its SQL Windows client/server development tool kit next week at DB Expo in San Francisco. New features "reflect a change in company direction," said a source close to Gupta. Meanwhile, the firm missed a promised April ship date for a Windows NT version of its SQLBase database. SQLBase 5.2, with support for NT and NetWare 4.0, will now be announced June 5 at Gupta's developer's conference.

Tools, turmoil and tardiness at Oracle

Also at DB Expo, new graphical computer-aided software engineering (CASE) tools from Oracle — namely, Oracle CASE 5.1 — are expected to be unveiled, according to an Oracle insider. CASE 5.1 is late, having been promised for early this year. Turmoil surrounding the departure of Oracle's CASE visionary, Richard Barker, contributed to the delay, according to a source high up in the International Oracle Users Group. Barker, along with CASE colleague Geoff Squire, quit Oracle several months ago for executive positions at Open Vision, a client/server systems management firm.

Big Blue highway under construction

IBM will unveil the road map for its piece of the information superhighway at Comdex/Spring next week, according to a source close to the company. Code-named In-Touch [CW, April 18], the upcoming service has been likened to a business version of the Internet without the security and reliability issues. The Comdex announcement will be the first time IBM talks about the service on the record, but the chatter will be about technology and architecture.

Microsoft says, 'Me too'

Lotus did it. Novell did it. And Microsoft is telling users that it, too, will partner with AT&T to offer a public network service. The two companies were at customers' sites recently, pitching a service that makes a company a node on an AT&T LAN, which users access via Messaging Application Programming Interface. Microsoft said it is not announcing the AT&T partnership anytime soon and that such services won't be limited to AT&T anyway.

Digital's name game

How does "AdvantageUnix" strike you? OK, how about "Unixworks?" Those are two of the names that have been bandied about for Digital's OSF/1 version of Unix, which the company plans to rename to reflect its diminished ties with the Open Software Foundation.

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